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A HISTORY
OF
BRITISH BIRDS,

WITH COLOURED ILLUSTRATIONS
OF THEIR
EGGS.

BY

HENRY SEEBOHM.

VOL. I.

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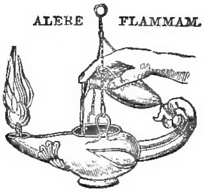
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* * *

INTRODUCTION.

The number of books which have been published on British birds is so great that it might be thought that every thing that could be said on the subject had been already well said. But such is the rapid progress which ornithology has made during the last few years that even the earlier portions of Dresser's 'Birds of Europe' and Newton's edition of Yarrell's 'British Birds' are quite out of date. Not only have many important gaps in the geographical distribution of some of our commoner birds been filled up, and a large part of the history of some of the rarer ones been discovered, but in many respects I have found it necessary to look upon the whole subject from a different point of view. The arguments in favour of the theory that the species of animals now existing in the world were evolved by natural laws, some of which we have discovered, from species of a more primitive type which lived in remote geological ages are so irresistible that it is impossible to ignore them. At the first glance it would seem that the development of a species was a subject quite apart from its present history; but it will be found that this question of the development of species by evolution is one which lies at the foundation of all inquiries into the history of individual species; and when it is answered in the affirmative, the study of ornithology is found to possess a new interest, many obscure points become comparatively clear, and the old treatment of the subject requires modifying in various ways. It is of the utmost importance to have clear ideas on this subject, in order rightly to interpret the facts of Nature; and consequently a few lines must be devoted to

THE HYPOTHESIS OF EVOLUTION.

There is amongst birds, as there is throughout the animal and vegetable world, a more or less keen "struggle for existence." The natural increase is so rapid that the surplus population is necessarily killed off, partly by falling a prey to stronger animals, partly by want of food, partly by disease, and partly, especially in the case of migratory birds, by other forms of violent death. Consequently we find that a weeding process is constantly going on throughout Nature. The weak die; the strong live: the fit survive; the unfit perish. This is called the "survival of the fittest." But to understand how this process can cause any development or evolution of species, it is necessary to know two facts:—first, that there is a difference between individuals, so that one is more fit than another to conquer in the struggle for existence; and, second, that these individual idiosyncrasies are for the most part hereditary, and are capable of being transmitted to offspring. These two facts are well known to every breeder of cattle, horses, dogs, or pigeons, and are the main facts upon which the horticulturist relies for success. The artificial selection of the farm or the garden has its counterpart in "natural selection." This is the broad theory of evolution as propounded by Darwin and Wallace. Respecting the details of its application, some difference of opinion still exists. Most writers consider that the differences in individuals from which Nature selects the fittest to survive by killing off those which are less fit to cope with the difficulties of life are *accidental* differences. Others hold the theory that the tendency to vary from the ancestral type is a tendency in a certain direction towards a fixed goal; it may be as mysterious and inexplicable as the tendency of a stone to gravitate to the earth, or of a needle to fly to a magnet, but not the less a fact, the one tendency being as originally inherent in organic matter as the other in inorganic matter. All that can be said is that it was originally made so. But, be this true or not, the peculiarities of form and colour which we find in birds and other animals do not seem to be all accounted for by the theory of the survival of the fittest. There seems to be a correlation of the external colour of many birds with their internal organization, which is inexplicable on the commonly received view. Many internal characters are, as my friend Mr. Alfred Tylor expresses it, emphasized on the plumage. It seems possible also that in some cases there may be a direct influence of climate upon colour, independent of the indirect influence of protective selection. The selection of Nature is in different directions. The fitness for the position in which a bird or other animal is placed which ensures its survival may be of various kinds:—muscular strength or other superior organization to enable it to conquer its enemies of its own or other species; special adaptations to enable it to secure a better supply of food; special coloration to enable it to escape the observation of its enemies or attract the attention of the opposite sex; or it may mimic the colour or shape of some other animal known to be dangerous; or the special fitness may be in the habits of the bird, in its choice of a nesting-site, in its migrations—in fact, in every variation of structure or habits which distinguishes one species from another.

The acceptation of the hypothesis of evolution implies the recognition of species in the process of formation. If this theory be correct, there must be always some species which are not yet finished. In the slow process of evolving two species from one there must be a period when the two species are only half evolved. Do we find these half-formed species? At any period of the world's history, if the process of evolution is always going on, there ought surely to be some instances of half-evolved species. So there are. It is easy to find examples of species in every stage of development, from mere local races to well-defined subspecies. To enable us to discriminate between these on the one hand and between species and subspecies on the other, it is necessary to inquire into

THE INTERBREEDING OF BIRDS *.

This is a subject which has been much neglected by ornithologists. The existence of intermediate forms so produced has been as much as possible ignored. Where the facts were too obvious to admit of doubt, the so-called cross was contemptuously dismissed as a hybrid, a monstrosity, and as such possessing no more scientific interest than a white Blackbird or a six-legged calf. So long as each species was supposed to have had a separate origin, and to be divided by a hard-and-fast line from every other species, this attitude of ornithologists towards interbreeding was excusable; but now that the theory of evolution has been generally accepted, the subject will be found to possess the greatest interest and to throw unexpected light upon the development of species. The old definition of species having lapsed, in consequence of the rejection of the theory of special creation, it is necessary to provide a new one. We may define a species to be a group of individuals which, however much they may vary from each other, do not present any hard-and-fast line between their extreme variations, and which, however near they may be to their nearest-allied species, are nevertheless separated from them by a hard-and-fast line. Naturalists may differ as to the assignment of the cause why intermediate forms are absent; but we may reasonably infer, first, that the intermediate forms have become extinct, and, secondly, that they are not reproduced by interbreeding. There may be several reasons why they are not reproduced by interbreeding. Where Nature has drawn the line very broadly, the species may have been so long separated and may have become so differentiated that productive sexual intercourse between them may have become structurally impossible. A somewhat narrower line exists between species which may be artificially crossed, but produce under those circumstances only a barren hybrid. The specific line of demarcation is

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* Interbreeding may or may not mean cross-breeding. Wherever the interbreeding which habitually takes place between the individuals of a species has not ceased, any differences between them can only be subspecific. Subspecies may be defined as groups in which the interbreeding which habitually takes place between individuals in a species has not yet ceased, but takes place along the whole line of its geographical distribution, though seldom between the two extremes.

still narrower where barren hybrids are produced in a state of Nature. The line of demarcation is considerably narrowed when more or less fertile hybrids can be artificially produced but do not occur in a wild state, either because the natural inclination to interbreed is absent or because the opportunity of interbreeding is taken away by isolation of area of geographical distribution; and we may consider the narrow line between such species and subspecies to be crossed when fertile hybrids are produced in a state of nature—a condition of things which, if the fertility is sufficient to continue to many generations, must inevitably produce an unbroken series of intermediate forms. "The amount of sterility," says Darwin, "between any two forms when first crossed, or in their offspring," which shall be "considered as a decisive test of their specific distinctness" is a point upon which naturalists are not agreed. There is no hard-and-fast line between a specific difference and a difference which is only subspecific. The practical result is that slight subspecific variations are constantly being produced by various causes, of which natural selection is probably the most important, and are as constantly being lost by interbreeding; so that the similarity of individuals in a species is retained, whilst the sterility produced by a specific variation prevents the universal mongrelization of species which might otherwise take place. Interbreeding is a check upon the indefinite multiplication of species; whilst the narrow limit in which it is possible provides against the extinction of specific differences. Amongst British birds there are a great many instances of subspecies of which we know, and no doubt many more of which we do not yet know. Most of these are cases where the individuals of each valley occasionally interbreed with their immediate neighbours, and where the range is great enough to make the sum of a series of small differences show a large difference in the extremes, as the Nuthatch, Marsh-Tit, Grey Shrike, &c. Others are cases where the species appear to be perfectly distinct, but nevertheless it is found that, where their respective ranges meet, they interbreed and produce offspring which are fertile both among themselves and with either parent, as the Dipper, Goldfinch, Crow, &c.

English ornithologists have for the most part ignored these intermediate forms, and with characteristic insular arrogance have sneered at their American *confrères* for adopting trinomial names which their recognition demands. In this, as in so many other things, our American cousins are far in advance of the Old World. One English ornithologist, however, deserves to be mentioned as an honourable exception. Mr. Bowdler Sharpe has boldly braved the blame of the Drs. Dry-as-dust and the Professors Red-tape; and the volumes of the 'Catalogue of Birds in the British Museum' hitherto represent almost the only European publications on ornithology which are not behind the age in this respect.

The binomial name will probably generally be used as a contraction; but it must never be forgotten that it is only a contraction. The difference between a species and a subspecies, though in some cases not very clear, is far too important a fact to be sacrificed to a craze for a uniform binomial nomenclature.

The grouping of individuals into subspecies and species is the first step in

The Classification of Birds.

The second step is to group species into genera and subgenera; the third is to group genera into families and subfamilies, and the fourth to group families into orders and suborders. The use of the terms subspecies, subgenera, &c. implies that all these divisions and subdivisions are more or less artificial, and that our systems of classification attempt to draw a hard-and-fast line where Nature has drawn none, or only a few here and there.

Looked at from one point of view, Nature may, however, be said to have drawn some very hard-and-fast lines. If it were possible to examine every species of bird which exists or has existed, we might find that all birds were descended from one common ancestral species, and that, consequently, every species of bird was connected with its nearest allies by an unbroken series of intermediate forms; in which case we should be obliged to admit that there was only one species of bird, divisible into an immense number of subspecies. Or we might find that birds are descended from several ancestral bird-reptiles (so to speak), and that consequently there were several species of birds, each divisible into an immense number of subspecies. We have, however, only to deal in our classification with existing species; and we at once perceive that by the extinction of species and genera, to say nothing of families and orders, Nature has drawn some very hard-and-fast lines, sometimes only narrow lines, but in many cases very broad ones.

When we come to deal with genera, the artificial character of our classification at once reveals itself. The old-fashioned notion that species were separated by differences of colour, and genera by structural differences (that is, difference in the shape of the bill, feet, wings, or tail), is a pre-Darwinian ornithological superstition, which is pure theory, and is entirely unsupported by facts. There is no evidence of any kind that the leopard can change his spots in a shorter time than it takes him to change the shape of his skull. On the other hand, there is strong evidence to prove that in many genera of birds colour or pattern of colour is more constant than many of the so-called structural characters. The principal causes of the change of colour in birds are supposed to be to ensure protection from enemies and to please the taste of the females, whilst the changes in the structural characters are most affected by the nature of the food and the necessity or otherwise to migrate. It will at once be seen that the former set of causes are much more constant than the latter in the Palæarctic Region. There is no reason to suppose that before the existence of man in this region much change took place in the enemies against which birds had to contend; nor has it ever been suggested that the tastes of female birds are as fickle as those of the females of some of the more highly developed animals of the Palæarctic Region; whilst, on the other hand, there can be no doubt that both the food and the migrations of birds must have been affected to an enormous extent by the changes of climate consequent on the coming on or passing away of glacial epochs.

Our ignorance of the comparative value of generic characters appears to me to be absolute; and, inasmuch as naturalists have agreed that the name of a bird is to be binomial, a combination of the generic and specific names, the wisest course is probably to group species together into convenient genera, which may assist the memory, taking care to satisfy ourselves that the species in each genus are connected together by closer links than those which connect them with species in other genera. The lines which Nature has drawn between different genera are caused by the extinction of intermediate species, or by the wideness of the differentiation which has taken place between them, which is generally, though not necessarily, a proof of the length of time which has elapsed since their original separation. All we have to guard against is that the lines which separate our subgenera shall be narrower than those which separate the genus from the nearest allied genera.

Our next business is to group our genera into families, the largest of which may be conveniently divided into subfamilies.

So far we shall find it pretty fair sailing in our attempts to classify British birds; but when we come to group our families into orders, the difference of opinion amongst ornithologists is so great as to the value of characters (which date back to such remote ages) as a sign of relationship or community of origin, that we are entirely at sea, and can only shrink from attempting to decide where doctors disagree. To show the great divergence of opinion amongst ornithologists, it is only necessary to compare the various modern attempts at a scientific classification of birds, which will be found to differ from each other in almost every important respect, so that it is obvious that any change in the generally received classification would be at least premature. Most of these classifications are open to the fatal objection that they are attempts to make a linear series, beginning with the most highly specialized birds and ending with the least so; whereas a true classification must be a chart in which the most highly specialized birds are in the centre, and the least so at the circumference, where they lead on to the forms most nearly allied to birds.

Since, then, all attempts at a linear arrangement must be artificial, and the classification of families into orders is impossible in the present state of our knowledge, I have arranged the families in the old but, to a large extent, artificial sequence adopted by Cuvier, which has at least the practical value that it is well known, and thus obviates to a large extent the trouble of reference to an index. I have been careful to point out under each family whether, in the opinion of the best informed naturalists, it is nearly connected or not with the families near which it is placed.

There is no department of ornithology which has received more attention of late years than that of

Geographical Distribution;

and there is no subject more intimately connected with the discrimination of species and with the whole question of classification. The zoological divisions into which naturalists divide the world are not the same as those in common use among geographers. So far as these boundaries are deep-sea, they may be said to be practically the same. Where there are no changes of climate to make it imperative upon birds to migrate it is remarkable how seldom they use their powers of flight to wander far from home. Even the narrow channel of deep sea between Borneo and Celebes marks an important boundary in the geographical distribution of birds, whilst the shallow Mediterranean is of little significance.

The land-boundaries of the zoological regions are climatic. The world is divided into six or seven zoological regions.

The Palæarctic Region contains the whole of the Old World north of the desert of Sahara in Africa and north of the Himalayas in Asia.

The Nearctic Region contains the New World north of the tropics, *i. e.* north of Mexico.

The Ethiopian Region consists of Africa south of the great desert, and Southern Arabia.

The Oriental Region consists of Asia south of the Himalayas, and the islands of the Malay archipelago as far east as Borneo.

The Australian Region consists of the rest of the islands of the Pacific.

The Circumpolar Region has the north pole for its centre, and extends to the Arctic circle in the Old World, and somewhat further south in the New; but many naturalists do not recognize this region as zoologically distinct.

Perhaps the most interesting fact connected with these divisions is that in the tropical regions most birds vary much less than they do in the arctic regions. If we eliminate the arctic genera, which are comparatively recent emigrants, we shall find that the tropical species are generally well defined; they are obviously ancient residents who have well nigh exhausted the variations required to adapt them to their surroundings, which must have been, in comparatively recent times, subject to but little change. On the other hand, the genera in the two arctic regions are crowded with imperfectly segregated species, which require for their explanation comparatively recent and important changes in the climate. These are to be looked for in the gradual approach of another glacial epoch. In the warm period which permitted the growth of pines almost at the north pole the whole of Europe, North Asia, and North America enjoyed a semitropical climate, and the variation of species throughout the arctic regions was probably very small. As the climate in Lapland and Siberia gradually changed, the birds living there gradually changed also; and thus we find now in many Palæarctic species a semitropical form in West Europe which is connected by a series of intermediate forms with an arctic form in Siberia, which again gradually changes in the east until in China the West-European form is reproduced. In some cases the series is completed by tropical species which have evidently been driven south by the glacial period and have never returned. I have endeavoured to interest the reader wherever possible in some of these near relations of our British birds, many of them so closely allied as to be only subspecifically distinct.

The number of birds included in the British list is about 380. Of these 126 are residents, though many of them have only slender claims to be considered so. Some of them are principally known as winter visitants, a few only remaining to breed, chiefly in the north of Scotland; others really belong to the summer visitants, but a sufficient number remain during the winter to entitle the species to be considered a resident one. Fifty-five species regularly visit our islands every summer for the purpose of breeding; but many of these are becoming rarer every year, partly in consequence of the persecution to which they are subjected on their arrival, and partly from the destruction of their breeding-grounds by the drainage of marshes and the reclamation of waste land. Forty-one species may be regarded as winter visitants; but many of these wander still further south during midwinter, being principally seen on our shores in spring and autumn. The birds contained in these categories form a total of 222 species which are fairly entitled to be considered British birds. It has, however, been the practice of ornithologists to consider any bird British which has even once been obtained in our islands in a wild state. Of the accidental visitors which thus reach our shores many have occurred only once; but others have been met with much oftener, though some of the recorded occurrences must be accepted with considerable hesitation. Birds often escape from confinement; a mistake is made in the identification of the species; and in very few cases are we able to trace clearly the pedigree of individual examples so as to leave no reasonable doubt of their authenticity, for skins are very frequently changed or transposed either by accident or design. The number of these accidental visitants to the

British Islands, after the doubtful ones have been rejected, is still 160, of which 97 have probably visited us from Europe, 45 from America, and 18 from Asia. There is no reliable instance on record of any bird whose breeding-range is confined to Africa ever having visited our shores.

The total number of birds which are either known to breed in Europe or are regular winter visitants is probably about 500. Of these, as we have stated, 222 are residents in the British Islands, either in winter or summer, and 97 are included in the list of accidental visitors, leaving only 180 European species which have not yet paid us a visit. The number of accidental visitors to Europe probably does not exceed 90; of these about 60 have visited our islands, leaving only 30 birds which, so far as is known, are accidental visitants to the continent alone.

Of the resident British birds one species only, the Red Grouse, is peculiar to our islands; and one other, the British Coal Tit, is subspecifically distinct from its continental allies.

It is necessary to say a few words on the vexed question of

NOMENCLATURE.

To understand the complications of the case let us take, as an example, the synonymy of the Cliffchaff, from the 'Catalogue of the Birds in the British Museum.' In order to give an index to the literature of this bird no fewer than seventy-six references to the works of ornithologists are given. An analysis of these gives the following result:—The number of specific names applied to the Chiffchaff by the writers quoted is fifteen. Of these we may at once dismiss twelve, one of which only occurs four times, one only three times, two only twice, and eight only once. We have now three names left to choose from, dating as under:—

1787. *hippolais* (Linn. apud Lath.)	8 times
1802. *rufus* (Bechst. ex Briss.)	41 „
1817. *collybita* (Vieill.)	8 „

It is obvious that the second name in the list is the one which ought, if possible, to be used. Let us first examine how many generic names have been applied to our bird; no fewer than nine. To these, however, we must add the generic terms which have been applied to other species of the genus. After eliminating those names which are obviously blunders, we have the following left:—

1766. *Motacilla* (Linn.).
1769. *Sylvia* (Scop.).
1802. *Asilus* (Bechst. nec Linn.).
1816. *Ficedula* (Koch nec Cuvier).
1817. *Trochilus* (Forster nec Linn.).
1826. *Phylloscopus* (Boie).
1829. *Sibilatrix* (Kaup).

1831. *Phyllopneuste* (Brehm ex Meyer).
1836. *Sylvicola* (Eyton nec Swainson).
1847. *Reguloides* (Blyth).
1858. *Acanthopneuste* (Blasius).
1875. *Phyllopseuste* (Meyer fide Meves).

How is the unfortunate ornithologist to select his generic name from such a series? To solve this complicated problem Strickland drew up his celebrated Rules of Nomenclature, which were afterwards adopted with slight modifications by the British Association for the Advancement of Science.

So far as regards specific names, I have throughout this work set the Rules of the British Association at defiance, being convinced that, so far as ornithology is concerned, they have done infinitely more harm than good. Every day that they are retained increases the confusion which they have introduced. No one has had the courage to attempt to carry them out on a large scale; but first one writer and then another introduces a new name, changes are being constantly made, and names are occasionally being transferred from one species to another, until it absolutely becomes necessary, in many cases, to quote the English names of birds as well as the Latin ones, the latter having been altered in obedience to the Stricklandian code, so that they are sometimes absolutely unknown to the general reader, or having been applied to different species, so that it is impossible to tell which of them is meant.

The mischief which these Rules have produced is bad enough; but the mischief which they must continually produce if any ornithologist is found bold enough to carry them out is far greater; and not a moment should be lost by every ornithologist jealous of the prosperity and honour of his favourite study in boycotting the new names, or exposing them in the pillory of synonyms.

The Stricklandian Code is admirable in theory, but utterly breaks down in practice. The Rules of the British Association are most excellent if applied in Utopia, but amongst a more or less muddle-headed race as ornithologists always have been, and as we still remain, they can only be productive of endless dispute and confusion. We cannot be trusted to form an opinion as to whether the brief and often blundering diagnoses of Linnæus, Gmelin, or Latham are or are not clear definitions of the names to which they are annexed. To expect unanimity on such difficult questions is absurd. I have adopted a scheme which appears to me to be the most practical of any which have been suggested. It may not satisfy the requirements of poetical justice; but it is at least consistent with common sense. I adopt the specific name which has been *most used* by previous writers. It is not necessary for me to encumber my nomenclature with a third name, either to denote the species to which it refers, or to flatter the vanity of the author who described it; all my names are *auctorum pluri-*

morum. Under this system no new names can possibly be raked up and applied; and it is one which reduces the chance of a difference of opinion to a minimum.

In the selection of generic names I have followed the Stricklandian Code with the following modifications:—

1st. I take it for granted that the edition of Brisson's 'Ornithologia,' said to have been published in 1788, really did exist, and that it was a reprint of the 1760 edition.

2nd. When the evidence as to the original type of a genus is not clear, then I follow the majority of authors in the selection of a type.

3rd. I accept the designation of a type as a clear definition of a genus and as overriding any error in the characters given.

4th. Wherever the name of a species has been selected for the name of a genus, the species whose name has been so adopted becomes of necessity the type of such genus.

5th. I adopt the specific name which has been most used, regardless of whether it be or be not the same as that of the genus.

I hope by these means to have eliminated the weak points of the code, and to have made it possible for uniformity to be the result of the honest effort to carry it out.

I have not figured the birds treated of in my book, partly because they have been so well portrayed in the magnificent plates of Gould's 'British Birds' and in the less ambitious illustrations of Dresser's 'Birds of Europe' *, and partly because it would have made the work too expensive. I might have tried wood-engraving; but I could scarcely have expected to find an artist who would equal the exquisite cuts in Yarrell's 'British Birds.'

On the other hand, there has not been a good book on British birds' eggs published for more than a quarter of a century, if we except the fragment of the catalogue of Wolley's collection which appeared nineteen years ago. It is a thousand pities that so many valuable notes which must have been made on the breeding-habits of rare birds in Lapland should still remain unpublished. In my opinion, John Wolley stands out prominent amongst all other British field-ornithologists as the one solitary example of a man who has shown in the pursuit of oology the pluck worthy of an Englishman. Even at the present day too many British oologists look upon the subject from the point of view of the mere collector of half a century ago, who, so long as he possessed an egg of each species of British bird, did not care whence it came or under what circumstances or by whom it was collected; and where they rise above this level, they scarcely get beyond the almost equally melancholy point of view of the museum curator, who, when he has labelled his specimen with name, locality, date, and collector, thinks that the requirements of science are satisfied. Of late years

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* Every ornithologist who can afford it ought to buy this work. It is an encyclopædia of information about European birds compiled from all the best sources. It is unfortunately disfigured with more than the usual average of blunders, especially in the numerous translations from the German, which can seldom be relied on. It is much to be regretted that such an incompetent translator should have been employed; but with all its faults it is a work which is invaluable to the student.

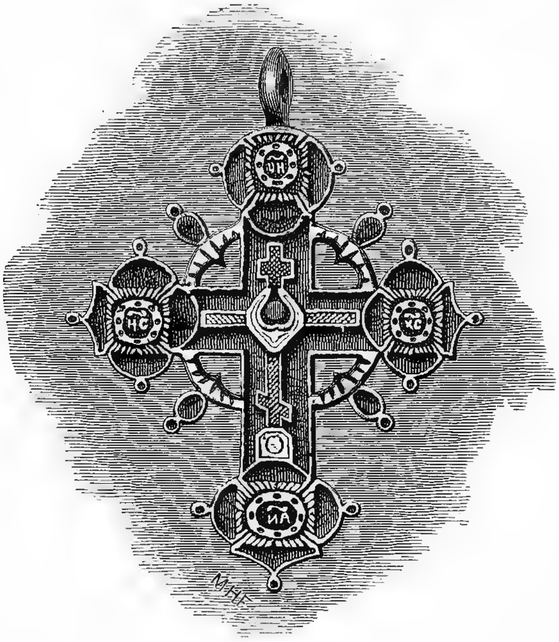
OOLOGY

has been much neglected. Some ornithologists ignore the subject altogether. It is looked upon by a few clever men as being specially adapted to the capacity of the schoolboy, but somewhat beneath the dignity of the scientific man; and it is in consequence too frequently despised. The new impetus given to the study of all branches of natural history by the discoveries of Darwin and Wallace has at length reached Oology; and an additional interest is given to it from the light which it throws in many cases upon the relationships of species and genera. The connexion between the colour of the egg and the colour of its surroundings, where it is exposed to danger, is also an additional question of interest of a strictly scientific character.

It is, however, an immense mistake to suppose that the history of a bird is completed by the meagre details given in such ultra-scientific works as the British Museum Catalogues. In these high and dry publications nothing is given but the synonymy, sufficiently complete to be an index to the literature, a minute description of the colours of the plumage and the changes produced by age, sex, and season, and the geographical distribution. These particulars may be sufficient for the museum curator; but for the field-naturalist they are but the foundation upon which his superstructure is to be built. The real history of a bird is its *life*-history. The deepest interest attaches to every thing that reveals the little *mind*, however feebly it may be developed, which lies behind the feathers. The habits of the bird during the breeding-season, at the two periods of migration, and in winter; its mode of flight and of progression on the ground, in the trees, or on the water; its song and its various call- and alarm-notes; its food and its mode of procuring it at different seasons of the year; its migrations, the dates of arrival and departure, the routes it chooses, and the winter quarters it selects; and, above all, every particular respecting its breeding, when it begins to build, how many broods it rears in the reason, the place it selects in which to build its nest, the materials it uses for the purpose, the number of eggs it lays, the variation in their colour, size, and shape,—all these particulars are the real history of a bird; and in the account of each species of British bird I endeavour to give as many of them as possible.

Oology may be described as the poetry of Ornithology; and to do it justice it demands some of the skill of the poet, as well as the accuracy of the man of science. No picture of the life of a bird is complete without some particulars of the scenes it frequents, which are in fact the frame in which it is set. No one can be more conscious than I am how much I have failed to reach the high standard at which I have aimed. I have endeavoured as much as possible to write from notes made on the spot, by which I have hoped to secure some of the freshness which is frequently lost in memoranda written long afterwards; and I have tried to retain something of the charm of local colouring which mere generalizations seldom possess. I have tried to make the matter as original as possible, and only to resort to paste and scissors when absolutely necessary; and where I have been obliged to fall back upon the observations of others I have sought to obtain unpublished accounts wherever possible. I have secured the services of Mr. Charles Dixon, the author of 'Rural Bird Life,' whose intimate knowledge of the everyday life of many of our familiar birds has been of great value to me, and whose observations will be found to be specially interesting to field-naturalists, for whom this work is specially written. My thanks are also due to many correspondents who have furnished me with information, which will be found properly acknowledged in the body of the work from time to time.

In conclusion, I beg to commend my book to all lovers of birds. If I have criticised the work of any of my fellow ornithologists too severely, I ask their pardon, and hope that they will pay me back in my own coin, by correcting my blunders with an unsparing hand. The object of all true scientific work is the elimination of error and the attainment of truth.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ERRATA ET ADDENDA.

Page 131, last line, *add* too late for the works of the two last-mentioned writers, but four years before the publication of that of the former.

„ 145, line 1, for ASTUR read ACCIPITER.

„ 251, line 32, for *capensis* read *maculosus*.

„ 254. I have just received from Mr. Eagle Clark an undoubted example of *Cinclus aquaticus*, var. *melanogaster*, shot at Spurn Point in Yorkshire, where it had probably arrived on migration from Scandinavia, as it frequently occurs on Heligoland.

A HISTORY

OF

BRITISH BIRDS.

Family FALCONIDÆ, OR BIRDS OF PREY.

THE Birds of Prey are distinguished by their powerful hooked bills and their strong feet armed with sharp, curved, powerful talons. At the base of the bill is a piece of naked skin called the cere. The Owls also possess this character, but may be distinguished by their fluffy plumage and facial disk.

The Falconidæ are a well-defined family ; but great difference of opinion exists as to their relationship to other groups. Sclater (guided by Huxley's investigations of the bones of the palate) places them in the same series with the Cuckoos, the Parrots, the Owls, the Pelicans, the Herons, and the Ducks. Forbes (relying largely upon Garrod's study of the muscular and arterial systems) removes from this list the Cuckoos, the Parrots, and the Owls, and adds to it the Petrels. Gadow, on the other hand, retains in the same great division the Parrots and the Owls, rejecting the Pelicans, the Herons, and the Ducks, as well as the Petrels, but adding the Pigeons and the Gallinaceous birds. It will thus be seen that there is no other family which these three authorities all agree to unite with the Birds of Prey. I have placed them first in my arrangement because they were so placed by Cuvier in his classification—a system which, although it is now universally admitted to be mainly an artificial one, is so well known to all ornithologists that it may well serve as an index until the natural order of sequence has been discovered.

Birds of Prey are cosmopolitan, the greatest number of species being found in South America, and the fewest in the Pacific islands. Sharpe, in his 'Catalogue of the Birds in the British Museum,' enumerates nearly 400 species and subspecies, which he subdivides into 80 genera. In the British Islands five-and-twenty species or more have occurred, belonging to eleven genera, which may be distinguished as follows :—

- *a*. Front of lower half of tarsus (as well as the sides and back) covered with small hexagonal reticulations, not feathered to the toes.
  - a^1. No true feathers on the crown of the head .... VULTUR.
  - b^1. Crown of the head covered with true feathers.
    - a^2. First primary much longer than the secondaries; lores not feathered, but furnished with bristles.
      - a^3. Tail even or slightly rounded.
        - a^4. Outer toe not reversible; bill deeply notched .... FALCO.
        - b^4. Outer toe reversible; notch almost obsolete ...... PANDION.
      - b^3. Tail acutely forked .... ELANOIDES.
    - b^2. First primary about equal to the secondaries; lores feathered PERNIS.
- *b*. Front of tarsus feathered, or covered with broad transverse scales.
  - c^1. Tarsus less than one fourth the length of the tail .... MILVUS.
  - d^1. Tarsus more than one fourth the length of the tail.
    - c^2. Lower half of tarsus scaled in front and reticulated at the back .... HALIAETUS.
    - d^2. Lower half of tarsus either feathered in front or scaled at the back.
      - c^3. Tarsus feathered in front to the toes .... AQUILA.
      - d^3. Lower half of tarsus scaled in front and at the back.
        - c^4. Tarsus less than a fourth the length of the wing, and less than half the length of the first primary.
          - a^5. Tarsus thick; circumference about one third of length .... BUTEO.
          - b^5. Tarsus slender; circumference less than one fifth of length .... CIRCUS.
        - d^4. Tarsus one fourth or more the length of the wing, and more than half the length of the first primary .... ACCIPITER.

Genus VULTUR.

The genus *Vultur* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 122. In 1806 Duméril separated the New-World Vultures, restricting the genus *Vultur* to those of the Old World, but not designating any type. Linnæus only knew two species of this genus, *V. monachus* and *V. percnopterus*. As the former bird is undoubtedly the most typical Vulture, its claim to be considered the type can scarcely be disputed.

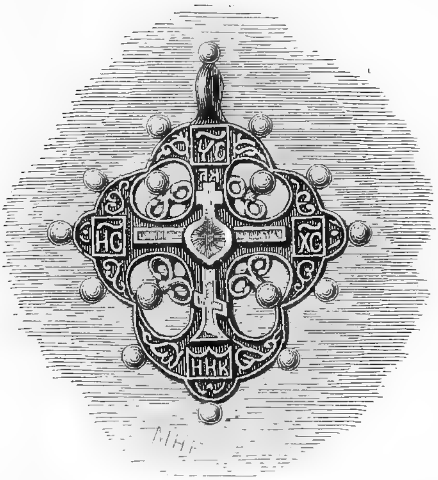
The species of Vulture which have been found in the British Islands are easily separated from the rest of the Falconidæ by the absence of true feathers on the head, which is more or less naked, or covered with down only. The front of the tarsus as well as its sides and back are covered with small hexagonal reticulations. The wings are long but rounded. The tail is rounded.

In Britain they are only accidental visitors, the true geographical range of the genus being confined to the South Palæarctic, Ethiopian, and Oriental Regions. It is a remarkable fact that there are no Vultures in Australia.

Their principal food is carrion.

Some Vultures breed in trees; but most of the species prefer the clefts of rocks. Their eggs vary from white to deep brownish red.

The two species which have occurred in Britain may easily be distinguished by their size, the Griffon Vulture having a length of wing from 28 to 30 inches, whilst the wing of the Egyptian Vulture only measures from 18 to 20 inches. There are only sixteen species of this genus known, which may be arranged in six subgeneric groups. The Vultures of the New World belong to a perfectly distinct genus.



VULTUR FULVUS.

GRIFFON VULTURE.

(Plate 1.)

Vultur fulvus, *Briss. Orn.* i. p. 462 (1760); *Gerini, Orn. Meth. Dig.* i. p. 43, pl. x. (1767); **et auctorum plurimorum**—*Gmelin, Temminck, Gould, Naumann,* (*Gray*), (*Newton*), (*Sharpe*), &c.
Vultur trencalos, *Bechst. Nat. Deutschl.* ii. p. 491 (1805).
Vultur castaneus, *Steph. Shaw's Gen. Zool.* vii. pt. i. p. 29, pl. xii. (1809).
Gyps vulgaris, *Sav. Syst. Ois. de l'Egypte,* p. 11 (1810).
Vultur leucocephalus, *Wolf, Taschenb.* i. p. 7 (1810).
Vultur vulgaris (*Sav.*), *Bonn. et Vieill. Enc. Méth.* iii. p. 1170 (1823).
Vultur persicus, *Pall. Zoogr. Rosso-As.* i. p. 377 (1826).
Vultur albicollis, *Brehm, Vög. Deutschl.* p. 1010 (1831).
Vultur chassefiente, *Rüpp. Neue Wirbelth. Vög.* p. 47 (1835).
Gyps fulvus (*Briss.*), *Gray, Gen. B.* i. p. 6 (1844).
Vultur fulvus occidentalis, *Schlegel, Rev. Crit.* p. xii (1844).
Gyps occidentalis, *Bonap. Consp.* i. p. 10 (1850).
Vultur ægyptius, *Licht. Nomencl. Av.* p. 1 (1854).
Vultur fulvus orientalis, *Schlegel, Mus. Pays-Bas,* ii. Vultures, p. 6 (1862).
Gyps hispaniolensis, *Sharpe, Cat. Birds Brit. Mus.* i. p. 6 (1874).

The claim of the Griffon Vulture to rank as a British bird rests on a single instance of its capture. This specimen was obtained by a youth on the rocks of Cork Harbour, Ireland; and its occurrence was recorded in 'Yarrell's British Birds,' on the authority of Admiral Bowles. In the autumn of 1843 he was visiting Lord Shannon, at Castle Martyr, and there saw the bird, which had been purchased from the lad who captured it. The example was in fully adult plumage and in good condition, and reported as being very wild and savage and in perfect health. The bird was preserved after its death, and placed in the Trinity College Museum, in Dublin.

The breeding-range of the Griffon Vulture may be said to be the basin of the Mediterranean, Caspian, and Red Seas. Large colonies are found in the Pyrenees and in the mountains of Spain, Sardinia, and Sicily. In the Alps they are rarer, and in the Carpathians still more so; but in the mountains of Bulgaria, Greece, and Asia Minor they are extremely abundant. In the Caucasus and the Southern Urals small colonies are found. St. John states that in Persia they breed in great numbers in the lofty limestone cliffs north of Shiraz; and Severtzow records it as a resident in Turkestan, where its breeding-range overlaps that of *G. himalayensis.* Colonies of Griffons are found in all the mountains of Africa north of the Sahara, from Morocco to the Red Sea, as far south as Nubia.

In the northern portion of its range it is a partial migrant, stragglers being occasionally found throughout Europe south of the Baltic; but in its breeding-quarters it may almost be considered sedentary. The Griffon Vulture has two near allies; indeed it is doubtful whether these birds are deserving of even subspecific rank. *Gyps fulvescens* is the Indian race, differing from the Griffon in being of a rich ruddy bay colour, with conspicuous narrow pale median stripes to the feathers of the underparts, and in having a short stout bill. In South Africa it is replaced by *Gyps kolbi* (Daud.), said to be slightly smaller in size, and differing in its light and almost uniform coloration, and which inhabits South Africa to the Zambesi on the east, and to Damara Land on the west coast, but more sparingly in the latter country (*cf.* Sharpe, Cat. Birds Brit. Mus. i. p. 8). This bird is again closely related to the *Gyps himalayensis* of North India and Turkestan, a larger bird and remarkable for its brown-coloured young.

I first made the acquaintance of the Griffon Vultures in the rock-bound valley to the east of Smyrna, and afterwards in the Parnassus, and at Missolonghi I saw so much of them that I began to look upon them as very common birds; nevertheless when I renewed my acquaintance with them last spring in the Pyrenees they interested me as much as if I had never seen them before. In Greece and Asia Minor they are so abundant that one naturally wonders where they all find food. Upon the ledges of the limestone cliffs which guard the vines and olives below, no doubt the grass is rich and tempting, and now and then a sheep or a goat may slip and find an untimely end on the broken rocks half concealed by the oaks, the oleanders, the roses, and the clematis which adorn the borderland between the precipices and cultivation. Such an accident is a windfall for the Griffon and Egyptian Vultures, one of whom is almost sure to have witnessed it, and by his eager flight to have betrayed the prize to an ever-increasing circle of hungry birds, always on the *qui vive* to discover a meal, or a fellow Vulture who knows or has a suspicion of one. As the camel can drink enough to last him for many days, the Griffon Vultures seem able to eat enormously at a meal, and to be able to go for a long time without a fresh supply. When they have gorged themselves they will sit motionless for hours on some commanding crag; otherwise they are generally on the wing, sailing round and round in majestic curves, seldom coming within range of gunshot, unless you suddenly meet them wheeling round the corner of a crag, or occupied upon the dead body of a mule or a camel. The flight of the Griffon Vultures is very majestic; they float and soar without apparent effort, as if they disdained to flap a wing, wheeling round and round in grand sweeps. The wings are very broad; and each quill is conspicuously displayed at the extremities, which are curved upwards by the resistance of the air. The tail is very short. As the bird flies or, rather, floats, the fore half of the upper parts are grey and the hind half black. The nature of their food makes them, in a certain sense, gregarious; but even when twenty or thirty can be seen on the wing together, it never occurs to you to think of them as a flock of Vultures, they are scattered so wide over the landscape.

In their breeding-habits Griffon Vultures are undoubtedly gregarious, though even then it may possibly be the nesting-sites which are gregarious rather than their occupants. They choose a perpendicular or overhanging limestone cliff in which hollows or caves rather than ledges are found at a considerable height from the ground, and generally inaccessible without a rope. They are said usually to build a great nest made of sticks, very rough on the outside, but more or less carefully smoothed and hollowed out in the middle, and lined with sheep's wool, goat's hair, dry grass, leaves, and any thing they can pick up. My Greek servant, however, assured me that he had frequently taken the eggs from a cavern where no nest was attempted; but the Greeks are such inveterate liars that I never knew when to believe him. The probable truth is, that they are not much of nest-builders, and appropriate the old nest of an Eagle or a Raven when they can. Where large nests not thus stolen are found they will most likely be the accumulated pile of many years. Both in Greece and Asia Minor I was too late for eggs, which can be obtained fresh in February and sometimes even in January; so I did not inspect many of the Griffonries very closely, though several were pointed out to me. The usual number of eggs is only one, though it is said that two are occasionally found. The stench of the Griffonries is almost insupportable. The entrance to the cavern or cleft in the rock looks as if pailfuls of whitewash had been emptied upon it; and the effluvia of ammonia and putrefaction are overpowering to all but the most enthusiastic oologist. One visit to the nest of a Vulture is sufficient to dispose for ever of the theory that these birds hunt by scent, and are endowed with highly sensitive olfactory nerves. The only condition in which the existence of animal life seems possible in a Griffonry is in the case of beings absolutely devoid of any sense of smell whatever. It is also said that concealed carcasses are rarely if ever discovered by Vultures. Irby found at Gibraltar that if the nest was robbed, a second egg was laid about six or seven weeks later. They are sedentary birds, but appear less common in winter, as they roam further from home when not employed upon the duties of incubation. So far as is known, their only food is carrion.

I am indebted to Captain Verner for the following graphic account of a visit to a colony of Griffon Vultures in Southern Spain :—" On March 14, 1878, I left Gibraltar with a friend, an officer of Artillery, with the intention of visiting several nesting-stations of the Griffon Vulture in the Sierras towards Cadiz. We reached the Laja del Sicar about half-past ten. This is a favourite nesting-place of *Gyps fulvus*, and is a triangular-shaped cliff rising out of the broken ground east of the Laguna de la Janda. Its general surface slopes back, so that the cliff is in most parts at an angle of 70° to 75° with the horizon. For about two thirds of its height it is as smooth as a wall, and offers no facilities for nesting. Above this the cliff becomes more broken; numerous long vertical fissures and caverns are to be seen extending to within a few yards of the top, which is a mass of huge crags and boulders heaped one on the other, with a dense jungle of palmetto, aloes, &c. growing out of every cranny and making it quite inaccessible. We decided that we would commence our attack from the left flank of the cliff, which seemed to offer some facilities for ascent in the shape of several broken ledges running across the face of the cliff at about an angle of 45°.

"Having worked our way through a densely wooded ravine, we at length found ourselves at the foot of the cliff. After several ineffectual climbs through palmettoes and thorns of every description, we had the luck to hit upon a narrow ledge leading towards the middle of the cliff. Following this for some fifty yards or more, we arrived at a small grassy terrace terminating abruptly in a precipice, and situated between the main cliff and a huge semidetached crag. From this point we could see the whole face of the cliff, and far away above us several Griffon Vultures basking in the sun.

"As it was impossible to advance further, my friend decided to wait at this spot, whilst I retraced my steps and tried to find some means to ascend higher. After one or two ineffectual attempts I at length succeeded in climbing up almost on a level with the part of the cliff most frequented by the Griffons; and several of them took wing. My friend, now far below me, fired his revolver, when a number of splendid old birds dashed out of the small caves to my front and above me. I was almost in despair, as I was at last nearly within reach of my long-coveted prize, and yet apparently it was hopeless to proceed any further; but having escaladed the stratified portion of the cliff I found myself on a ledge at the entrance to a chasm. Climbing up this, the strata became more and more clearly defined, until the whole surface of the cliff was made up of a mass of horizontal ledges from one to three inches in thickness. Owing to the general slope of the cliff, I found it was quite practicable to sidle along many portions of the actual face of the great precipice. Keeping a firm grip with my fingers on strata above me, my bare feet obtaining support from the lower tiers of strata, I soon reached a ledge commanding the main nesting-place; and on looking down over a projecting spur I saw right into a large nest about ten feet below me! Between me and it the rock became vertical, and I was unable to descend. I think that I had now gone beyond the stage of counting the cost; for I scrambled round to the opposite side of the nest, and, having reached a spot about six feet over it, I somehow slipped down right into it with a foot on each side. I was quite exhausted from the climb and the excitement, and sat down by my prize to recover myself. I was in a small cave with a sloping floor, on which was built the nest. The view, now that I could look without fear of falling, was most magnificent. The whole plain of La Janda with its lagunas was at my feet; and I could see the distant Atlantic and the sandy cape of Trafalgar over the Retin hills. The most interesting object to me was the Griffon's nest and one white egg. The nest was a massive affair made of boughs and twigs, very neatly lined with dried grasses and dead palmettoes. The bowl was about the size of a small hand-basin, say fifteen inches in diameter; and I was much struck with its finish and depth, as I had rather expected to find a mere platform of sticks &c. The rock below it was white with the dung of the birds; and there was an indescribable sickly odour about the place. I carefully packed the egg in my box; and, it being out of the question to climb *up* to where I had dropped from, I was most fortunately able to continue my route in a downward direction. I soon came upon two more nests with eggs, and one empty nest. I now found myself opposite the main fissure of the precipice. As I was walking round into it along a most uncomfortable bit of strata, a fine old Griffon dashed out close to me. I slipped round the corner and swung myself right into the nest. This also contained an egg. Again I found myself in a trap; for I could not proceed, a wall-like cliff barring further advance; and although I had jumped off a ledge of strata into a nest, I did not feel inclined to reverse the performance. After a *mauvais quart d'heure* (during which time, as my friend subsequently told me, he imagined I must have been killed) I struggled up the fissure, until it narrowed itself enough to form good climbing-ground for a chimney-sweep. After ascending fifty feet or more I struck a good substantial ledge, which led me to a series of chasms, one below the other, where I came across five more nests. I soon found that my egg-box was full, and that unless I could devise some means I should be obliged to leave some of the eggs behind. So on reaching a favourable spot I put the eggs in my bag, and whilst doing so dropped the box at my feet. On attempting to stoop to pick it up, I found that I must relinquish my handhold with no chance of finding more lower down; and as I only had *foothold* enough for one foot, I was obliged to desist and leave the box where it lay.

"All the nests I visited were much of the type described; some were larger and some rather less carefully built. They all had the appearance of having been the collection of many nesting-seasons, the lining and a portion of the top sides being the only new additions.

"Of the eight eggs I actually brought away with me on this occasion, six were pure white, one very large specimen was faintly speckled with rufous at the larger end, and a small variety was speckled at the smaller end.

"The whole area of the cliff which the Griffons frequented smelt in the same manner as the first nest. It was not due to any carrion about the place (such as is frequently the case in a Neophron's nest), but appeared to be caused from the dung and the natural odour of the birds. At times it was most nauseating.

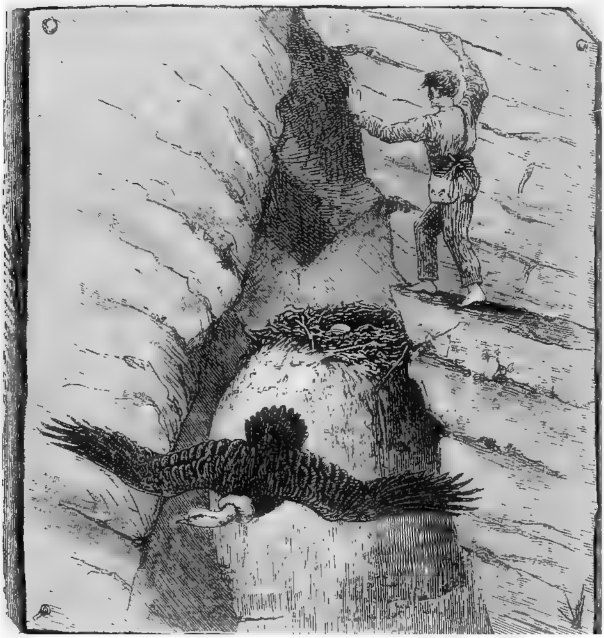
"As I was making good my retreat towards the spur of the hill I met with a mishap which gave me rather a start. I had grown bold when I found the ledges of strata gave such good hand and foothold, and so did not take much notice of where I rested. Suddenly a piece under my foot gave way, and I swung round on the hand (which luckily had a good hold) furthest from the rock, causing my egg-bag to swing round and hit the rock. Luckily I somehow got a foothold and was able to reach a safer spot. During the time that I was rifling their nests the Griffons kept sailing about overhead; ever and again one bolder than the rest would come swooping past me, but never near enough to give me any apprehension. Most fortunately they did not realize what a very slight touch would have upset my balance when traversing the small ledges. I was very glad when I found myself doubling the spur, and could see that the ground in rear of the cliff was easy to traverse, though rough and broken. I made my way in rear over huge boulders with aloes and every sort of obstacle growing between them, the worst being prickly pears, which abounded. I passed a huge cave which was evidently much frequented by the Vultures as a shelter in certain winds, judging from the enormous amount of dung which spread like whitewash all down the face of the crags.

"Upon blowing the eggs I found that four were quite fresh, or nearly so; the rest contained young Vultures in various states of development: one would have been hatched out within a week."

The Griffon Vulture seldom lays more than one egg, although occasionally two have been recorded, and Salvin found one egg and one young bird in a nest of this species in Algeria. The eggs are coarse in texture, and possess little or no gloss. Most eggs are white, or nearly so; but some show a considerable amount of marking which cannot be explained by any supposition of their being stained. One specimen in my collection is very faintly but broadly streaked and blotched on the larger end with very pale pinkish brown; another, one of the handsomest eggs of this species I ever saw, obtained by Colonel Irby at Malaga, has the colouring-matter very evenly distributed in spots and blotches and pale streaks uniformly over the entire surface; a third is washed round its centre with a band of reddish brown, and on the larger end is a thick irregular mass of rich brown; a fourth (which is figured) has the deep-brown spots confined to the smaller end of the egg, where they form an irregular zone; whilst a fifth, which may be called a typical egg, is milky white, spotless or clouded here and there with stains and nest-markings. My friend Mr. Howard Saunders tells me that in Southern Spain there is a colony of Griffon Vultures whose eggs are always more or less spotted and streaked. Griffon Vultures' eggs vary from 3·85 to 3·5 inches in length, and from 2·9 to 2·7 inches in breadth. Eggs of the Black Vulture (*Vultur cinereus*), although, as a rule, richly marked, sometimes very closely resemble those of the Griffon Vulture. It is then impossible to separate the eggs of the two species with certainty,—although in the *field* confusion can never arise; for the Black Vulture invariably nests in trees, and the Griffon just as invariably on rocks.

The Griffon Vulture is a buffish-brown bird with nearly black wings and tail, and with the head and neck covered with white down. The bill is pale brown and the legs lead-colour; *not vice versâ*, as is erroneously given in Dresser's 'Birds of Europe.'

The young birds, when newly hatched, are covered with white down.



NEST OF GRIFFON VULTURE.

VULTUR PERCNOPTERUS.

EGYPTIAN VULTURE.

(PLATE 1.)

Vultur fuscus, *Briss. Orn.* i. p. 455 (1760).
Vultur ægyptius, *Briss. Orn.* i. p. 457 (1760).
Vultur leucocephalos, *Briss. Orn.* i. p. 466 (1760); *Gmel, Syst. Nat.* i. p. 248 (1788).
Vultur percnopterus, *Linn. Syst. Nat.* i. p. 123 (1766); **et auctorum plurimorum**—
(*Temminck*), (*Naumann*), (*Gould*), (*Gray*), (*Newton*), (*Sharpe*), &c.
Vultur alimoch, *La Peyr. M. et Ois. de la H. Garonne*, p. 10 (1799).
Vultur stercorarius, *La Peyr. loc. cit.* (1799).
Vultur albus, *Daud. Traité d'Orn.* ii. p. 21 (1800).
Neophron percnopterus (*Linn.*), *Sav. Ois. de l'Egypte*, p. 16 (1810).
Cathartes percnopterus (*Linn.*), *Temm. Man. d'Orn.* i. p. 8 (1820).
Cathartes meleagrides (*Pall.*), *Temm. Pl. Col.* i. genre *Catharte* (1824).
Vultur meleagris, *Pall. Zoogr. Rosso-Asiat.* i. p. 377 (1826).
Percnopterus ægyptiacus, *Steph. Shaw's Gen. Zool.* xiii. pt. ii. p. 7 (1826).
Neophron ægyptiacus (*Steph.*), *Smith, S. Afr. Q. Journ.* i. p. 16 (1829).

At least three specimens of the Egyptian Vulture have been recorded from Great Britain; and two of these examples have been captured. In October 1825 two examples of this Vulture were seen near Kilve in Somersetshire; and one of them was eventually shot, and was obtained by the Rev. A. Matthew, who is quoted by Yarrell as follows:—"When first discovered it was feeding upon the carcass of a dead sheep, and had so gorged itself with carrion as to be unable or unwilling to fly to any great distance at a time, and was therefore approached without much difficulty and shot. Another bird similar to it in appearance was seen at the same time upon wing at no great distance, which remained in the neighbourhood a few days, but could never be approached within range, and which was supposed to be the mate of the one killed." The other instance was recorded in the 'Zoologist' for November 1868, p. 1456, by Mr. C. R. Bree, as follows:—"On the 28th of September last the labourer who had charge of an off-hand farm of Mr. Woollard, of Stanway Hall, situated at Peldon, Essex, had been killing his Michaelmas geese. On going some time after into the yard where said geese had been slaughtered, he saw a strange bird feeding upon the blood. The bird flew away, and the man loaded his gun. Presently the bird came and hovered over the spot, in hopes of another spell at the blood; but his fate was sealed, and he fell dead to the labourer's shot. I saw the bird next day at the house of Mr. Ambrose, of this place, to whom it had been sent for preservation. Mr. Woollard has since kindly furnished me with the above information. As far as I know, this is only the second instance of the capture of *Vultur percnopterus* in Great Britain, the first having been shot on the shores of the Bristol Channel, as recorded by Yarrell &c. in 1825. It is quite possible that it has more frequently visited our shores, though not captured. Mr. Laver, of this town (Colchester), informs me that many years ago his father, who lived near Burnham, further up the Essex coast than Peldon, had a flock of Vultures for several days among the large trees on his farm. They were known by their bare heads, and were most probably the Egyptian Vulture." Both the birds above mentioned were in the brown or immature plumage. Such is all the recorded information respecting the occurrence of the Egyptian Vulture in Great Britain.

Its breeding-range may be said to be the mountainous portions of all countries in the basin of the Mediterranean, the Caspian, and the Red Seas. It also breeds in the Canaries, Madeira, and the Cape-Verd Islands. Although a few birds may remain in certain of their breeding-haunts throughout the winter, still the greater number migrate southwards down the African coasts, and many probably into the interior of the continent, a few straying as far south as the Cape colony. It is found throughout Persia and Turkestan; but Severtzow did not meet with it in the Pamir, nor is it recorded by Prjevalsky from Tibet or Mongolia. In India it is replaced by *Vultur ginginianus*, said to differ in being slightly smaller in size, in having the apical portion of the bill pure yellowish flesh-colour instead of blackish, and in having the throat much barer of feathers. In its habits it is not known to differ from the western species, except that it prefers trees to rocks for its nesting-place. There are only two other species in this subgenus, both of which are confined to Africa and are chocolate-brown in colour instead of white.

The Egyptian Vulture is as common in Greece and Asia Minor as the Griffon Vulture; but, unlike that bird, it is only a summer visitor to these countries, arriving towards the end of March, and leaving about the middle of September. It is consequently a much later breeder, the earliest eggs being found in April. When I was in the Parnassus I took, or saw taken, four nests of this interesting bird. Two of them, one on the 5th and the other on the 8th of May, were near Castri (the ancient Delphi); the third was near Drachmana, on the 15th, and the fourth near Arachova, on the 18th. The Egyptian Vulture does not breed in colonies. It is less difficult to please in the choice of a locality; and the nests are generally accessible to a good climber without a rope; consequently suitable sites may be found in almost every valley of the Parnassus. The scenery of the Parnassus is very similar to the mountain-limestone districts of Matlock and Dovedale in Derbyshire, but of course on a much grander scale, rising to eight thousand feet above the level of the sea. It may conveniently be divided into four regions. The lower two thousand feet is covered with rocks, olives, and vines, occasionally varied with fields of Indian corn, cotton, and tobacco. Then follow two thousand feet which was once an oak region; but all the trees have long ago been cut down, except an isolated grove here and there round a convent or a graveyard. Now it may be said to be the scene of a constant struggle between rocks and herbage. Sometimes the greatest part of this region is represented by a series of nearly perpendicular cliffs dropping down into the lower regions; but it generally consists of ranges of sloping valleys, too rocky to admit of cultivation by spade, but having sufficient herbage upon them in summer to supply food to flocks of sheep or goats. It is in this region that the Egyptian Vulture breeds. Above is two thousand feet of rocks and pines, and, finally, two thousand feet of rocks and snow. The Egyptian Vulture breeds in the same cliffs year after year; and Dr. Krüper was kind enough to engage for me a Greek peasant who knew almost all their breeding-places in the Parnassus. He was a wonderful climber, having in his youth been accustomed constantly to scale the cliffs in quest of wild bees' nests. When we reached a cliff in which there usually was a nest, he used to scream and yell in order to alarm the bird. Sometimes his clamour was successful, and the bird flew off and revealed the fact that the eyrie was occupied; sometimes we had to fire a shot before she would betray her treasures; and once or twice our efforts were in vain, and we came to the conclusion that the nest was empty. At one nest we found the best way was to let a little Greek boy down by a rope to take the eggs. Another nest was robbed by my Greek servant with the help of a rope; but the third was taken by sheer climbing. It almost made one's hair stand on end to watch the old man in his stocking-feet gradually mounting higher and higher up the perpendicular cliff until, when he had reached the nest and held out the eggs for me to see, the height was so great that without my binocular I could not have recognized them for eggs. A few small sticks, with a little dry grass or wool, was all the nest we found. The eggs were usually two, one much more richly coloured than the other. It is said that three eggs are sometimes found. The fourth nest I took with my own hand. The eggs were laid in an old nest of the Lammergeir, in one of the mountain-gorges near the Pass of Thermopylæ. It was not very difficult of access, several ledges assisting the ascent materially. In the cleft behind the nest were piles of the broken shells of the tortoise, which the Lammergeir had eaten.

The eggs of the Egyptian Vulture are buffish or creamy white in ground-colour, spotted with brownish red. Sometimes the spots are confluent all over the egg, paler in places (where the colouring-matter appears to have been rubbed off when it was wet). Every intermediate type occurs between this and eggs in which the colouring-matter is distributed in blotches and small and large spots, which only become confluent at the large end, or, in very exceptional cases, at the small end. They vary in length from 2·9 to 2·3 inches, and in breadth from 2·1 to 1·9 inches.

The Egyptian Vulture is said to eat snakes and other reptiles; but carrion is no doubt its main food. Tristram describes very graphically how a dead camel is first preyed upon by the wolves and jackals. The Griffon Vultures wait until the quadrupeds are satisfied, and then they take their turn; and not until they have gorged themselves are the Egyptian Vultures allowed to begin their meal. In the Golden Horn, in Constantinople, I have seen them picking up dead fish and other offal from the surface of the water in company with Black Kites and Gulls.

In Stamboul they breed in the old cypresses, and on the walls and mosques; and Col. Irby mentions an instance of one breeding in an old nest of a Short-toed Eagle, in a cork-tree, near Gibraltar. Lord Lilford describes these birds in Andalusia as following the plough to pick up the grubs turned up by the ploughshare. Tristram describes them in Palestine as resorting to the dunghills of the villages to feed, eagerly devouring all sorts of animal or vegetable filth, and mentions a pair which he surprised in the act of gorging at a heap of spoilt figs. He also states that the dung of the flocks and herds of the Bedouins is their favourite food. He describes their nests as very large; but these would probably be old Eagles' or Ravens' nests which had been appropriated by the Egyptian Vultures.

The flight of this Vulture is very similar to that of the Griffon. J. H. Gurney, jun., describing its habits in Algeria, says that "both in ascending and in descending it usually flies in circles. Like most other birds of prey, it rarely flaps its wings, but, with pinions motionless, slightly upturned at the tips, it scans the surrounding country from an enormous height, receding rapidly from the eye, yet appearing to fly but slowly. The nearer the ground the smaller are the circles, and the more lowered is the inner wing; in fact, when about to settle, the bird is nearly sideways, the point of one wing appearing to be directly beneath the point of the other. It walks with long strides, but not fast, stooping first on one side and then on the other."

The Egyptian Vulture, when adult, is a nearly white bird, with black primaries and brown secondaries. The bill is dark brown, and the cere yellow; legs and toes flesh-colour, claws black. In the immature birds the feathers are dark brown, tipped with buff.

Genus FALCO.

The genus *Falco* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 124. At the present day it is impossible to make even a guess at the species which Linnæus considered typical; but as the *Accipiter falco* of Brisson is the Peregrine Falcon, this species may safely be accepted as the type.

The true Falcons may always be distinguished by their long pointed wings, the first primary being nearly equal to the third, and much longer than the secondaries. The bill is deeply notched. The lower half of the tarsus is entirely covered with small hexagonal reticulations, and is never feathered. The tail is somewhat rounded.

This genus is almost cosmopolitan in its range, being only absent from the Pacific islands. Of the British species of this genus, four breed in our islands, and four or five more are accidental visitors.

Most of the Falcons feed on small mammals and birds; but some occasionally eat insects.

Their nests are generally placed in trees or rocks, but sometimes on the ground. The eggs vary from white, more or less richly marked with red-brown, to an almost uniform red-brown.

In the genus *Falco* the female is always larger than the male, and in some species differs from her mate in the colour of her plumage; but even in these cases very old females sometimes assume the plumage of the male. The young in first plumage always differ from their parents. They retain their immature dress through their first winter, and moult into the adult plumage during the following summer.

FALCO GYRFALCO AND FALCO CANDICANS.

BROWN JER-FALCON and WHITE JER-FALCON.

(PLATE 3.)

There are two species of Jer-Falcons, very distinct from each other, and having well-defined geographical ranges, but connected together by a series of intermediate forms in the intermediate localities. It is not known that these intermediate forms are produced by the interbreeding of the two extremes; but in the case of the form which inhabits Iceland there seems to be evidence that some interbreeding does take place (see Ibis, 1862, p. 47, footnote). The synonymy of the two species and their most important intermediate forms is as follows :—

FALCO GYRFALCO.

BROWN JER-FALCON.

Falco gyrfalco, *Linn. Syst. Nat.* i. p. 130 (1766); **et auctorum plurimorum**—*Schlegel, Bonaparte, Naumann, Gould,* (*Sharpe*), &c.
Falco sacer, *Briss. apud Forst. Phil. Trans. Roy. Soc.* lxii. p. 382 (1772).
Falco lanarius, *Linn. apud Lath. Gen. Syn. Suppl.* i. p. 282 (1787).
Falco sacer, var. β, *Gmel. Syst. Nat.* i. p. 273 (1788, *ex Forst.*).
Hierofalco gyrfalco (*Linn.*), *Brehm, Journ. Orn.* 1853, p. 266.
Falco norvegicus, *Tristr. Ibis,* 1859, p. 24 (*ex Wolley's Sale Cat. nec Lath.*)
Falco gyrfalco norwegicus, *Schl. Mus. Pays-Bas,* ii. Falcones, p. 12 (1862, *nec Lath.*).
Falco (Hierofalco) gyrfalco (*Linn.*), var. gyrfalco (*Linn.*), *Ridgw. N. Amer. Birds,* iii. p. 108 (1874).
Falco (Hierofalco) gyrfalco (*Linn.*), var. sacer (*Forst.*), *Ridgw. N. Amer. Birds,* iii. p. 115 (1874).

FALCO GYRFALCO-CANDICANS.

ICELAND JER-FALCON.

Accipiter falco islandicus, *Briss. Orn.* i. p. 336 (1760).
Accipiter gyrfalco islandicus, *Briss. Orn.* i. p. 373 (1760).
Falco islandus, *Gmel. Syst. Nat.* i. p. 271 (1788, *ex Brünn. nec Lath.*).
Hierofalco islandus (*Gmel.*), *Sharpe, Cat. Birds Brit. Mus.* i. p. 414 (1874, *nec Lath.*).

FALCO CANDICANS-GYRFALCO.

SOUTH-GREENLAND JER-FALCON.

Falco rusticolus, *Linn. Syst. Nat.* i. p. 125 (1766).
Falco fuscus, *Faber, Faun. Groenl.* p. 59 (1780).
Falco arcticus, *Holb. Zeitschr. Ges. Nat.* iii. p. 426 (1854).
Falco gyrfalco grœnlandicus, *Schl. Mus. Pays-Bas,* ii. Falcones, p. 13 (1862).
Falco holbœlli, *Sharpe, Proc. Zool. Soc.* 1873, p. 415.
Hierofalco holbœlli (*Sharpe*), *Sharpe, Cat. Birds Brit. Mus.* i. p. 415, pl. xiii. (1874).

FALCO CANDICANS.

WHITE JER-FALCON.

Accipiter falco freti hudsonis, *Briss. Orn.* i. p. 356 (1760).
Accipiter gyrfalco, *Briss. Orn.* i. pl. xxx. fig. 2 (1760).
Falco rusticolus, *Faber, Faun. Groenl.* p. 55 (1780).
Falco islandus, *Faber, Faun. Groenl.* p. 58 (1780) ; *Lath. Gen. Syn. Suppl.* i. p. 282 (1787).
Falco islandus β. albus, *Gmel. Syst. Nat.* i. p. 271 (1788, *ex Brünn.*).
Falco candicans, *Gmel. Syst. Nat.* i. p. 275 (1788); **et auctorum plurimorum**—*Schlegel, Strickland, Reinhardt, Newton, Gray, Sharpe,* &c.
Falco islandicus (*Briss.*), *apud Lath. Ind. Orn.* i. p. 32 (1790).
Falco grœnlandicus, *Turton's Gen. Syst. Nat.* i. p. 147 (1806).
Hierofalco candicans (*Gmel.*), *Cuv. Règne An.* i. p. 312 (1817).
Falco gyrfalco, *Linn. apud Pall. Zoogr. Rosso-As.* i. p. 324 (1826).
Falco islandicus candicans, *Holb. Zeitschr. Ges. Nat.* iii. p. 426 (1854).
Falco (Hierofalco) gyrfalco (*Linn.*), var. candicans (*Gmel.*), *Ridgw. N. Amer. Birds,* iii. p. 111 (1874).

An anonymous reviewer, in an able article on this subject (Ibis, 1862, p. 44) recognizes three species of Jer-Falcons, *F. gyrfalco, F. candicans,* and *F. islandus.* Nine years later Newton (Yarr. Brit. B. i. pp. 36–52) does not suggest any alteration in this conclusion. Sharpe (Cat. Birds Brit. Mus. i. p. 410), in 1874, admits the validity of the two first-mentioned species, but splits the last-mentioned into two, *F. islandus* and *F. holbœlli.* In the same year Baird, Brewer, and Ridgway (Hist. N. Amer. Birds, iii. p. 108) only recognize one species, which they subdivide into five varieties. *F. gyrfalco* is split into var. *sacer,* var. *gyrfalco,* and var. *labradora*; *F. candicans* is called var. *candicans*; and *F. islandus* and *F. holbœlli* are united under the name of var. *islandicus.* In 1876 Dresser ('Birds of Europe,' vi. pp. 15–30) reunites var. *sacer* and var. *gyrfalco* under the name of *F. gyrfalco,* but admits the distinctness of *F. labradorus. F. candicans* is recognized as a good species, but *F. holbœlli* is reunited with *F. islandus* under the latter name.

The characters upon which these alleged species are based are very variable, and the localities of examples in various museums are very inexact. In the literature of the subject still more uncertainty prevails, in consequence of wrong determination of immature birds; but after making allowance for these supposed errors, the following appears to me to be the most rational solution of this puzzling problem.

We may at once dismiss *F. labradorus* as a perfectly distinct species, of a nearly uniform brown colour in the adult, with a few buff streaks on the flanks, and a perfectly brown tail. This species breeds in Eastern Labrador; and there seems to be no evidence of any kind that any intermediate forms occur between it and *F. gyrfalco.*

F. candicans is the arctic form, breeding only north of the arctic circle, in North Greenland, and Eastern America north of Hudson's Bay. No Jer-Falcon has ever been found breeding in North Russia or Siberia. The thoroughbred bird has a white tail at all ages, and entirely white underparts in the adult; the upper parts below the head are sparingly marked with tear-shaped spots. In the young the feathers of the back are brown, with white margins and bases, and a few longitudinal streaks appear on the head, breast, and flanks. In birds that are not thoroughbred, the spots on the back gradually broaden until they become bars; and examples may be found showing every intermediate form between a few spots on the tail and flanks and a perfectly barred tail and flanks in the adult, and in the young with the addition of spots on the breast. Where the back is barred and the thighs are streaked only or white, it is the so-called dark race of the white Jer-Falcon, Sharpe's intermediate stage between young in first plumage and adult of that bird. When the thighs are barred and the breast white, it is Sharpe's adult *F. holbœlli*; and when, in addition to the barred thighs, the breast is spotted, it is Sharpe's supposed intermediate stage between young in first plumage and adult of that bird. The white edges to the feathers of the back in the young of these half-bred forms have become pale brown, and every feather of the underparts has a conspicuous brown longitudinal streak in the centre. All these intermediate forms are found in Greenland, and are connected with another series of intermediate forms, also found in Greenland, with the Iceland birds, *F. islandus*, differing but little from the preceding in first plumage, but always being streaked on the breast in the adult. The changes I have described are also accompanied by a greater development of the dark spots on the head, which, in the thoroughbred *F. gyrfalco*, are almost distributed over the entire feather, causing the head to look nearly uniform dark brown. In western North America intermediate forms occur between the Iceland and Norwegian birds*. The selection of any one of these intermediate forms is purely arbitrary; and between the two extreme forms it is just as easy to make ten subspecies as two. Even in such a comparatively small series as that in the British Museum, intermediate forms are found upon which ornithologists differ in opinion as to which race they should be referred.

Three at least of the four principal forms of Jer-Falcon above enumerated have occurred at various times in the British Islands. From the manner in which the several forms of this Falcon have been confounded, it is extremely difficult to apportion the "large Falcons" that have so often visited our shores to their respective subspecies. It is very evident that the white Jer-Falcon was well known as a British bird a century ago; and

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* Compare P. Z. S. 1870, p. 384, where Newton refers them "without doubt" to *F. islandicus*, "though belonging to the darker phase of that form," with P. Z. S. 1875, p. 115, where Dresser asserts that, if the American specimens had not unfortunately been sent back, every one then present could have convinced himself of their specific identity with *F. gyrfalco*.

Latham informs us that it was then an inhabitant of Scotland, probably a winter visitant from its far northern home.

Some half dozen specimens of the White Jer-Falcon are recorded as having been taken in England, eight in Scotland and its islands, whilst in Ireland but three specimens are recorded. A young bird, from which Yarrell's excellent woodcut was taken, was killed in Pembrokeshire, and is now preserved in the British Museum. A specimen was shot in Cornwall, and preserved in the collection of Mr. Rodd. Stevenson records one killed in Norfolk, near Cromer; Mr. Hancock one which was caught near York in 1837; and Mr. Roberts another specimen, captured in Robin Hood's Bay, near Scarborough. Gray, in his 'Birds of the West of Scotland,' instances four examples as having been taken in the Hebrides, another in Lanarkshire, in 1835, also an immature male in Perthshire, in the spring of 1862. The bird described and figured in Pennant's 'British Zoology' was said to have been obtained near Aberdeen. On the 3rd of March 1866, on the authority of Dr. Saxby (Zool. p. 288), a female was shot on Balta, one of the Shetland Islands. Thompson records two from Ireland, both in co. Donegal; and Mr. Blake Knox records a third, killed in the winter of 1862–63, and now preserved in the Museum at Dublin.

Although we have no reason to suppose that the Iceland Jer-Falcon has appeared less frequently in our islands, still, possibly from its far less conspicuous dress, it has certainly been less noticed and recorded. Mr. Hancock has two birds in his collection—one recorded in the 'Zoologist' (1845, p. 935), obtained at Bellingham on the North Tyne, and the other at Normanby, in Yorkshire, in March 1837. In Mr. Borrer's collection is an adult bird, shot at Mayfield, in Sussex, in January 1845. In Scotland, as may naturally be supposed, the occurrences are far more frequent. Gray records numerous examples, from Ross-shire, Sutherlandshire, and Inverness-shire, between the years 1835–51; and in more recent years he is satisfied that several examples have been obtained in the west. Four specimens are recorded from the Hebrides; and Mr. Elwes mentions another trapped in 1866 in Argyllshire. In the Shetlands we have Dr. Saxby's authority for the bird having been a somewhat regular visitor; but it is now only occasionally seen.

The only authentic instance of the occurrence of the Norwegian form of the Jer-Falcon in this country is an immature example, which was obtained at Orford, in Suffolk, on the 14th of October 1867. It was shot by Mr. George Hunt, in the act of devouring a hen, and is now in the possession of his brother, Mr. Edward J. Hunt, of Pimlico, by whom it was stuffed. It is in an excellent state of preservation; and the plumage is scarcely at all abraded. The head is somewhat darker than the back; and the underparts, including the thighs, are longitudinally streaked. It is probably a bird of the year which has not yet assumed the yellow legs.

The Jer-Falcon is an arctic Peregrine, with all the dash and courage of that bird. It is the only Hawk resident in the arctic regions. Its keen eye, rapid powers of flight, and capability of being tamed make it a favourite with the falconer, and the terror of the weaker birds. Its home is the tundra, beyond the limits of forest-growth, where it selects the rocks and the mountains on which to breed. The arctic form of this bird (*F. candicans*) is clad in a snowy dress, protective to a degree amongst the eternal snows of its northern home. This protective dress, however, is not to shield the bird from danger; for a bird of such prowess need fear no foe. Its protective colouring serves to conceal it from its prey, and enables it to sit watching for it, or steal upon it, unseen. The arctic form of the Jer-Falcon used to fetch the highest price for hawking, as it was considered the boldest bird, possessing the most rapid powers of flight. Holböll states that the food of the Jer-Falcon in Greenland is principally composed of Ptarmigan and water-fowl, and that on one occasion a bird was once seen with a young Kittiwake in each foot, and another was observed with a Purple Sandpiper in each foot. Although such instances would seem to show how successful this bird is in the chase, still Holböll says that the Jer-Falcons were not very expert at catching his pigeons. Richardson, who observed the Jer-Falcon in Hudson's Bay, states that its food is Ptarmigan, Plover, Ducks, and Geese, mostly the former.

The flight of the Jer-Falcon is spoken of by all who have had the opportunity of witnessing it as grand and powerful in the extreme. Many of its motions resemble those of the Peregrine; and if an intruder should chance to threaten its nest, it will often fly round in circles with such velocity as to produce a rushing sound as it darts through the air. Jer-Falcons have been seen perched on the high stakes near the shore, in a similar position to that which a Tern would choose, to pounce upon the Puffins sitting unconcernedly at the entrance of their burrows close at hand. During the summer months the Jer-Falcon ofttimes takes up its abode near some bird-rock, to prey upon its feathered denizens.

Holböll states that he found young Jer-Falcons moulting throughout the winter; and he has determined by dissection that birds of this species breed the following season after their birth. In Greenland the breeding-season of the Jer-Falcon is in June. The nests are sometimes placed on the loftiest cliffs, either near the sea or further inland, and sometimes on the tops of pines and other trees. In Iceland they are always on the rocks. Out of eighteen nests taken by MacFarlane on the Anderson river, north of the Great Bear Lake, sixteen were on the tops of pines or other trees from ten to twenty-five feet high; one nest was on a ledge of rocks; and the other was built on the rough ground on the side of a steep and high hill. The earliest eggs were found on the 27th of May; but eggs are often found as late as the end of June. These early nests are often commence before the rigours of an arctic winter have passed away and while the snow still lies deep upon the ground. The nest is composed of twigs and small branches, lined with moss, hay, deer's hair, feathers, &c. According to Audubon, it is built at an altitude of 100 feet, is very flat, 2 feet in diameter, and made of sticks, seaweeds, and moss. At the nest the bird is very noisy and bold; and Richardson mentions an instance where the bird attacked him while he was plundering its home.

As regards the nesting-economy of the Brown Jer-Falcon, Wolley was probably the first to give, from his own personal observations, particulars respecting it. In Scandinavia its breeding-season is much earlier than that of its American and arctic allies; and out of upwards of twenty nests observed by that enthusiastic naturalist in West Finmark, the eggs were almost all taken towards the end of April. The first nest he obtained was in a cliff, very flat and large, made out of bleached and barkless twigs, and lined with a bundle or two of dry grass. This nest contained four eggs, slightly incubated. Another nest was under an overhanging rock, made of fresh sticks, very large, and had the inside lined with willow-twigs and sedgy grass; other nests he saw contained feathers. On the 7th of June another nest came under his notice, which contained three young ones and an egg. The hen bird appeared with food in her talons at this nest. It was built in a recess a short distance from the ground, the downy young birds inside continually uttering a chirping cry. One egg of the Jer-Falcon was brought to Mr. Wolley, and was said to have been taken from a nest in a tree standing on the edge of a very large marsh. This nest suggests the theory that the Jer-Falcon accommodates itself to certain localities which contain its food; for the large marsh near the nest was probably its favourite hunting-ground. Wolley found near some of the nests the bones of Whimbrels and Ptarmigans; and Audubon mentions that beneath the nests he found were wings of the Ptarmigan, Puffin, and Guillemot. Collet's information, probably relating to East Finmark, differs somewhat from that quoted from Wolley; my Swedish friend says that the Brown Jer-Falcons almost invariably nest on the tops of large fir trees.

The note of the bird when an intruder is at the nest is much like that of the Peregrine, and very loud, shrill, and piercing.

The eggs of the Jer-Falcon are usually four in number, sometimes only three. The ground-colour is creamy white; but usually the markings entirely conceal it from view. They are closely freckled and spotted with orange-brown, rich reddish brown, and bricky red. Many eggs of this bird closely resemble typical Hobby's eggs; others approximate more nearly to certain varieties of the Peregrine. In a large series in my collection, however, I do not find that the eggs are ever so dark as those of some other British Falcons, and the markings are very evenly dispersed, sometimes becoming confluent, at others uniformly distributed over the entire surface. Some specimens have the markings smoothly and evenly laid over the entire surface, giving them the appearance of ground-colour which is marbled and more intensified here and there. Another very beautiful variety is mottled all over with pale rosy-pink shell-markings, intermixed with pale reddish-brown blotches and spots on a creamy-white ground; whilst others have the spots and blotches mostly confined to the larger end of the egg, leaving the white under surface exposed to view. Jer-Falcons' eggs are slightly more elongated than Peregrines', have a somewhat rougher shell, and possess little gloss. In size they vary from 2·4 to 2·2 inches in length, and in breadth from 1·9 to 1·8 inch.

In the autumn many Jer-Falcons wander southwards; but these are mostly birds of the year which may have lost their way, or been tempted to follow in the wake of the retreating hordes of wild fowl that go south at the approach of winter.

The female Jer-Falcon (length of wing 16 to 15 inches) may always be distinguished from the Peregrine (length of wing 14½ to 12 inches) by its larger size, and the female Peregrine from either sex of the Jer-Falcon by the structure of the feet. In the Peregrine the outer toe without the claw is longer than the inner toe without the claw; whilst in the Jer-Falcon the outer and inner toes are about equal in length. The tail of the Jer-Falcons is also uniform in ground-colour, whilst in that of the Peregrine the bars are obscurer towards the tip, making the general colour darker at the tip than at the base.

Sharpe's very ingenious theory, that the intermediate forms between the White Jer-Falcon and the South-Greenland Jer-Falcon are an intermediate stage of plumage between the young in first plumage and the adult, is entirely unsupported by evidence; indeed the existence of young in first plumage of each form is strong proof to the contrary, to say nothing of the fact that his supposed intermediate stage of plumage remains constant for years in confinement.

In the 'Zoologist' for 1867 (p. 597) Mr. W. Jeffery records the occurrence of a "Buzzard" which was brought into Chichester Harbour by a coal-vessel. It was caught in the rigging of the ship when off Flamborough Head. Mr. Gurney, in the 'Zoologist' for 1875 (p. 4721), alludes to this capture, and corrects the statement. The bird in question was sent to the Zoological Gardens, and was ascertained to be a Jugger Falcon (*Falco jugger*). As this Falcon is very commonly used in India for hawking, it was most probably an escaped bird, although the circumstance is worth recording.

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FALCO PEREGRINUS.

PEREGRINE FALCON.

(Plate 3.)

Accipiter falco, *Briss. Orn.* i. p. 321 (1760).
Accipiter falco peregrinus, *Briss. Orn.* i. p. 341 (1760).
Falco gentilis, *Linn. Syst. Nat.* i. p. 126 (1766)*.
Accipiter peregrinus, *Gerini, Orn. Meth. Dig.* i. p. 55, pls. xxiii., xxiv. (1767); **et auctorum plurimorum**—(*Latham*), (*Temminck*), (*Naumann*), (*Gould*), (*Gray*), (*Hume*), (*Newton*), (*Dresser*), &c.
Falco peregrinus, *Tunst. Orn. Brit.* p. 1 (1771).
Falco orientalis, *Gm. Syst. Nat.* i. p. 264 (1788, *ex Lath.*).
Falco communis, *Gm. Syst. Nat.* i. p. 270 (1788, *ex Buff.*).
Falco calidus, *Lath. Ind. Orn.* i. p. 41 (1790).
Falco lunulatus, *Daud. Traité,* ii. p. 122 (1800, *ex Lath.*).
Falco abietinus, *Bechst. Naturg. Deutschl.* ii. p. 759 (1805).
Falco pinetarius, *Steph. Shaw's Gen. Zool.* vii. pt. i. p. 195 (1809).
Falco anatum, *Bp. Comp. List B. Eur. & N. Am.* p. 4 (1838, *ex Audubon*).
Falco micrurus, *Hodgs. Gray's Zool. Misc.* p. 81 (1844).
Falco nigriceps, *Cass. B. Calif.* p. 87 (1855).
Falco brookii, *Sharpe, Ann. Nat. Hist.* xi. pp. 21, 222 (1873).

The Peregrine Falcon is undoubtedly the commonest of the larger birds of prey now found in the British Islands—a bird noted for its marvellous rapidity of movement and flight, its almost unequalled audacity and boldness, and for the great reputation it bore in the days when falconry was a favourite pursuit. Although slowly but surely becoming extinct in the British Islands, the Peregrine still breeds in a few localities in England, but is much commoner in Scotland and Ireland, where the wildness and seclusion of the scenery afford it a safer and more suitable refuge. At the present day the Peregrine breeds sparingly on the sea-girt cliffs of the south coast from Cornwall to Kent, the rocky headlands of Wales, and inland in several localities of Cumberland and Westmoreland; but it is most probable that the bird has now deserted the cliffs of the Yorkshire coast for ever. In Scotland we find it becomes much more numerous, most, if not all, the great bird-rocks and precipices being tenanted by a pair or so, the birds becoming more numerous in the less frequented districts, notably amongst the mountain-scenery of the Highlands and the Western Isles, particularly in Skye, the bold rocky coast-line and mountainous scenery of which is so well adapted to its wants and security, and where it is universally known as the "Falcon." In Ireland the Peregrine inhabits and breeds in all suitable localities throughout the island, both on maritime cliffs and inland mountain districts.

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* There seems to be little doubt that the *F. gentilis* of Linnæus is an immature Peregrine. There cannot be the slightest doubt that the Falcon Gentle of Albin, to which he refers, is a Peregrine. Many of the Linnæan names (notably those of the Owls) admitted by ornithologists are much more doubtful and much less clearly defined. There are only three logical ways of treating this question. If you do not reject the doubtful names alluded to, or adopt the name of *F. gentilis* for the Peregrine, the only alternative is to reject the laws of priority of publication and clear definition before they have still further complicated and confused the study of ornithology.

In the wideness of its distribution the Peregrine is equalled by few other raptorial birds. It is a circumpolar bird, and breeds more or less regularly in every country in Europe north of the basin of the Mediterranean up to lat. 68°, a considerable number migrating into North Africa &c. for the winter. It also breeds throughout Asia north of the Himalayas, wintering in India and Burma. It nests in North America wherever suitable localities are found, and has occurred in winter as far south as the Argentine States of South America.

The Peregrine's haunt is the open country—the moorlands, mountain-sides, and commons and waste lands near the sea being its favourite places. Although by no means a common bird, still in suitable localities it may be justly considered far from rare. Truly indeed the Peregrine is a noble bird; his courage when on the wing and his proud bearing when seated on some naked branch or rock-pinnacle stamp him as one of the most lordly of his race. A study of the Peregrine's habits leads the observer into the wildest and grandest of scenery. His chattering cry once heard can never be mistaken, usually uttered as he sails at some considerable height in ever widening circles. It is wonderful how gracefully he glides, not, perhaps, so evenly as the Buzzard, nor so lightly as the Windhover, but with a peculiar motion strictly his own. Perched, it may be, on some rocky boulder, he sits quite upright, his broad head ever and anon turned anxiously from side to side, and his wings frequently half expanded as though he were about to take wing. The Peregrine is indeed a bird of the moor, the fjeld, and the tundra. The Grouse, the Ptarmigan, and the blue hare supply him with his meal, and the mountain precipices a fitting nesting-place. But the Peregrine is also found on the borders of the ocean, choosing for his home some rocky islet or inaccessible sea-washed cliff. Here the sea-fowl are his sustenance; and here he remains throughout the year, rearing his brood safe from the inroads of man, save, indeed, the bold and hardy rock-climber, who, for the sake of gain, not unfrequently robs his nest.

The Peregrines breeding in our islands are non-migratory; but in the spring and autumn numbers of birds pass over, remaining some little time to rest, and then proceeding again on their journey. These Falcons usually attend the vast flocks of waders and water-birds migrating to or from their breeding-grounds in the Arctic regions, and thus secure an abundant supply of food. It is doubtless to this migratory movement of the Peregrine from the extreme northern limits of its range that we must attribute the appearance of the bird in those localities now so little suited to its requirements, as, for instance, the low-lying eastern counties. Indeed, in the greater part of England the Peregrine is only known as a migrant, most common in the autumn, and in a few cases remaining through the winter in some favoured spot. It is also worthy of remark that these autumnal wanderers are, for the greater part, young birds; but in the spring movement northwards old birds are more numerous. Even young birds bred in our own land quit the place of their birth so soon as they can forage for themselves, their parents guarding their own stronghold with the greatest jealousy from intruders, and breeding there year after year if unmolested.

Naturally enough, the time for studying the Peregrine Falcon's movements to best advantage is when it is engaged in obtaining its food. Most species of water-fowl are preyed upon, as well as Grouse and Partridges; but perhaps his favourite food is the Rock-Doves which nestle on the ocean-cliffs around him, and the Stock-Doves in the more inland districts. Few birds, indeed, fly more swiftly than these two species of Dove, yet the Peregrine takes them with comparative ease, fairly flying them down, or perhaps more frequently darting with great rapidity upon them unawares. Dixon, writing of the Peregrine on Skye, says:—"A favourite morsel with the Peregrine is the comical little Puffin, or 'Sea-Parrot,' as the fishermen call him; in fact in some localities this bird almost forms his only food. Here, for instance, on this steep ocean-cliff a colony of Puffins have established themselves. The time is early morning; and the Puffins are coming to and quitting their holes, from and to the sea below, where quite a large company are fishing and disporting themselves. Several of the curious little birds leave the cliff together, and with rapid beats of their short wings pass to the water below. Suddenly a loud flapping of wings is heard, *something* flits like a meteor from the air above, and follows the Puffins in their downward course. Perceiving their danger they scatter; but too late; already one of their number is struck and quivering in the sharp talons of their common enemy. All for the moment is commotion: the birds on the sea beneath dive out of danger; and those on the cliffs are in uproar at the suddenness of the onslaught. But the alarm soon subsides, and the birds are pursuing their usual avocations again. Indeed it is a noteworthy fact that the birds display very little alarm whilst the Falcon sails high in air above them; and it is no uncommon thing to see the bird, evidently when its appetite is satisfied, surrounded by Terns and Gulls, and see the Puffins sitting quite unconcerned a stone's throw from their enemy." The Peregrine also feeds on young rabbits and leverets, especially of the blue hare.

The Peregrine is of a very wandering disposition, and frequently goes miles away from its accustomed haunt, often exploring the coast-line for long distances in lazy soaring flight, ever and anon being mobbed by the Gulls and Terns, or even the Carrion-Crows and the Hoodies, who seldom fail to set up an uproar as soon as it makes its appearance.

As a rule the Peregrine is a comparatively silent bird, save when alarmed—and to some extent a solitary one; for although these birds live in pairs, still they frequently hunt for sustenance alone, and are seldom seen together except during the season of reproduction.

Mr. Cordeaux informs me that "the Peregrine is a resident in North-east Lincolnshire in the winter months. A pair invariably frequent the district between Broadley Wood and Croxby Lake. They are mature birds, and feed almost exclusively on Wood-Pigeons and the common Pigeons of the dove-cotes, frequently showing great boldness in the capture of the latter. The female, which I have seen at very close quarters, and in the act of devouring a tame Pigeon, is a magnificent bird, the underparts almost pure cream-coloured without a spot. On the coast I have seen the Peregrine swoop at Curlews, but never successfully and never repeating the swoop. The power of the Curlew on the wing is so great that it may defy even the attempts of this swift-winged destroyer. Both old and young frequently occur in autumn, in September and October, on migration."

The breeding-season of the Peregrine commences early in April, the young being often found in down by the beginning of May. Although the birds pair for life, the same nesting-ground is not always tenanted—other situations being chosen, seemingly at the caprice of the bird. One season it will be in one part of the cliff, the next in another, as though the birds had several favourite places and used them each in turn. Its nesting-sites are various: in some localities the nest is placed in the tallest trees, notably so in Pomerania and the wooded districts of North Germany, while in others it is amongst the most inaccessible rocks, as in our own islands; and in some countries, such as Finland and Lappland, the ground alone is ofttimes chosen as a resting-place for it. The pair of Peregrines that frequent the Bass Rock have chosen an admirable situation for their nest, which is situated near the summit of the stupendous cliff on the west side, where they have an almost boundless view and are comparatively safe from their only enemy—man. Dixon visited this nest on the Bass, and writes as follows:—"So soon as we reached the neighbourhood of the nest the female bird dashed rapidly from it, uttering her harsh chattering cry as she went, which speedily brought the male bird upon the scene. As I was partly lowered and partly climbed down the face of the rock, the scene around me was an impressive one, dear to the heart of him who delights in nature and her works. Far down below, the Guillemots and Puffins were disporting on the sea at the base of the cliff, looking for all the world like small animated air-bubbles or specks of foam, whilst the air around was full of Gannets sailing dreamily about, their snow-white plumage glistening in the noonday sun, and their grating cries, harsh though they were, lending a wild charm to the scene around. Far up in the air above the two old Peregrines were sailing in ever widening circles, the female bird, easily distinguishable by her superiority in size, venturing the closest, sometimes coming so near as to enable me to catch the sparkle of her bright black eye and hear the rustle of her pinions. The male bird was much more wary, and kept at a respectful distance, whilst both birds incessantly uttered their sharp chattering cry of alarm at the threatened danger to their offspring. The nest was on a narrow ledge of the rock, just affording sufficient standing-room, and was a poorly made crude structure. It consisted for the greater part of a few bits of vegetation, placed there by chance alone, carelessly strewed in a little hollow. Quantities of feathers, a few pellets, and the bones and feet of various birds strewed the vicinity of the nest, amongst them being the legs and feet of a Puffin just recently conveyed there. Of course, had the nest only contained eggs, the feathers and other refuse would probably have been absent. It contained a single young bird in dirty white down, that allowed me to examine it minutely without the least show of resistance. Scattered round and in the nest were numerous pellets, formed of fur and feathers and small bones, the refuse of the bird's food, which is thus ejected."

Harvie-Brown and I found the Peregrine breeding on the steep clay banks of the river Petchora in North-east Russia, at Stanavialachta. On the 27th of June, on the grassy top of a mound halfway down the mud-cliffs overlooking this great river, and within sight of the Arctic Ocean, we came upon the nest. It contained four eggs, one of which was much lighter in colour than the others. This mound had probably been used for some years as a nesting-place by the Falcons, since the grass was much greener upon it than upon the surrounding places. A little way off there rose another mound just similar to it: and this was apparently the Falcon's dining-table; for scattered all about it were feathers of Grouse, of Long-tailed Duck, and of divers small birds. While we remained near the nest the two Falcons hovered round, uttering sharp cries; when we approached nearer still they redoubled their screams, hovered over us, closed their wings, and descended perpendicularly till within a few yards of our heads. A mile up the river we found a second nest upon an exactly similar green-topped mound. This nest contained three eggs; and the behaviour of the birds as we neared it was the same as that of the previous pair. I also met with the Peregrine breeding on the tundra on the steep mud cliffs on the banks of the Yenesay. In lat. 69½° I spent the night of the 13th–14th of July on shore, shooting. I had no sooner landed than a couple of Peregrines showed me their nest by their loud cries. A glance at the cliffs decided the place where the nest ought to be, on the top of a steep mud promontory, which stretched out to a sharp ridge beyond and above the surrounding coast, and which was conspicuous by its greenness. I climbed up a valley in which the snow was still lying, and walked straight along the ridge to the little hollow, where the four red eggs were placed upon a dozen small flakes of down. These eggs were considerably incubated.

The eggs of the Peregrine Falcon vary from two to four in number. The ground-colour of the egg when exposed is a pale yellowish white, and the markings vary from brick-red and orange-brown to rich reddish brown. Many of the eggs are often suffused with a beautiful purplish tint, which is seen, but more rarely, on the eggs of the Kestrel. Peregrine Falcons' eggs vary considerably in size and form, some being much elongated, others almost globular. They vary in length from 2·15 to 1·95 inches, and in breadth from 1·75 to 1·52 inch. The specimen figured may be taken as a fairly typical egg of this species.

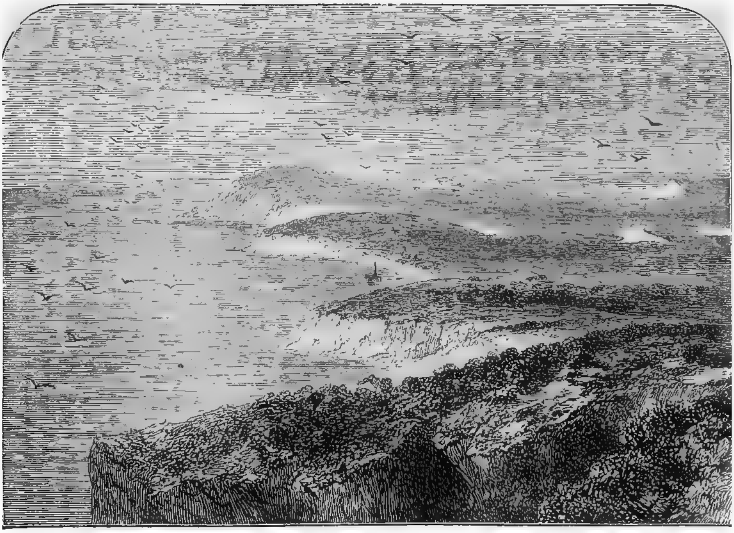
Time was when the noble Peregrines lived as favoured birds, the company and amusement of kings and princes, being trained for the chase. The female bird was always known as the Falcon, the male as the Tiercel; and from her marked docility she was not unfrequently called the Gentil or Gentle Falcon. Then the Peregrine was under man's protection, and penalties were inflicted on him who molested or destroyed it. But the days of hawking have long waned; and the Peregrine, once so favoured, is now open to an incessant persecution, which bids fair to exterminate it from our land. This persecution, which is continually being waged against all our raptorial birds, is slowly but surely doing its work. The Peregrine in its sea-girt fortress will be one of the last Falcons to disappear before it; but the time will soon be when each noted eyrie will but exist in an empty name. The Heron was the favourite bird of chase for the Falcon, the sport usually taking place as the birds went to and from the streams to the heronry. Sir John Sebright, in his 'Observations on Hawking,' gives the following particulars respecting this peculiar sport :—

"The Herons go out in the morning to rivers and ponds at a very considerable distance in search of food, and return to the heronry towards the evening. It is at this time that the falconers place themselves in the open country, down wind of the heronry, so that when the Herons are intercepted on their return home, they are obliged to fly against the wind to gain their place of retreat. When a Heron passes, *a cast* (a couple) of Hawks is let go. The Heron disgorges his food when he finds that he is pursued, and endeavours to keep above the Hawks by rising in the air; the Hawks fly in a spiral direction to get above the Heron; and thus the three birds frequently appear to be flying in different directions. The first Hawk makes his stoop as soon as he gets above the Heron, who evades it by a shift, and thus gives the second Hawk time to get up and to stoop in his turn. In what is deemed a good flight this is frequently repeated, and the three birds often mount to a great height in the air. When one of the Hawks seizes his prey the other soon *binds to him,* as it is termed, and, buoyant from the motion of their wings, the three descend together to the ground with but little velocity. The falconer must lose no time in getting hold of the Heron's neck when he is on the ground, to prevent him from injuring the Hawks. It is then, and not when he is in the air, that he will use his beak in his defence. Hawks have indeed sometimes, but very rarely, been hurt by striking against the Heron's beak when stooping; but this has been purely by accident, and not (as has been said) by the Heron presenting his beak to his pursuer as a means of defence. When the Heron flies down wind he is seldom taken, the Hawks are in great danger of being lost, and, as the flight is in a straight line, it affords but little sport."

The Peregrine has the general colour of the upper parts a bluish or slaty grey, barred with a darker tint, except the head and a broad moustachial patch descending from the gape, which are black; the lower plumage is white, suffused with buff, spotted on the throat and upper breast and transversely barred on the remainder with blackish. Cere and legs bright yellow; iris dark brown; bill horn-colour, becoming lighter at the base. The female resembles the male, but is much larger. Young birds in first plumage have the upper parts ashy brown, darkest on the head, each feather edged with rufous; the underparts whitish, longitudinally streaked with brownish; tail irregularly barred and tipped with white. In the young birds the cere and eyelids are blue. The Peregrine Falcon presents great individual diversity in the colours of its plumage, light and dark forms of this bird occurring often in the same nest.

There are no less than five tropical forms of the Peregrine, all somewhat resembling each other, and all probably only subspecifically distinct from it. As might be expected, they are all darker on the upper parts and more rufous on the underparts. The South-African form has been called *F. minor*: it has the underparts below the breast much more regularly barred, but is chiefly distinguished by its smaller size, the males varying in length of wing from 10½ to 11½ inches instead of from 12 to 13 inches, and the females from 12½ to 13 inches instead of from 13½ to 14¾ inches. There are two Indian forms, which do not differ much in size from the typical bird: they are very nearly allied to each other; and every intermediate form is found between them. In North-west India *F. atriceps* occurs, with the underparts below the breast slate-grey and very closely barred; and in East and South India we find *F. perigrinator,* with the underparts below the breast very rufous and with only a few spots. In Australia, Sumatra, and Java *F. melanogenys* breeds, resembling the South-African and the North-west Indian forms in having the underparts below the breast very closely barred, and the latter in having those parts greyish. The South-American form found in Chili and Patagonia, *F. cassini,* is scarcely distinguishable from *F. melanogenys* and *F. atriceps.*

Another allied species, the Barbary Falcon (*F. barbarus*), of which *F. babylonicus* is probably the female, inhabiting North Africa, Turkestan, and North India, belongs to the Lanner group of Falcons, differing from the Peregrine group in having more or less chestnut on the nape, and would not require notice here were it not for the fact that it apparently interbreeds with the Peregrine, producing intermediate forms known as *F. punicus,* which are found on the shores of the Mediterranean. The variations of plumage in this supposed species are, to quote the words of Mr. Gurney ('Ibis,' 1882, p. 316), "not a little remarkable, some specimens being almost undistinguishable in markings and coloration from *F. minor,* others approaching exceedingly near in these respects to *F. barbarus,* whilst the majority exhibit a plumage more or less intermediate between these two extremes." When we consider that *F. punicus* is a slightly larger bird than either *F. minor* or *F. barbarus,* and have regard to its geographical distribution, to the pale slate-grey of its upper parts, and its tendency to be suffused with slate-grey on the underparts below the breast, it seems most probable that it is an intermediate form between *F. barbarus* and *F. peregrinus.*



SITE OF PEREGRINE'S NEST ON THE PETCHORA.

FALCO SUBBUTEO.

HOBBY.

(Plate 4.)

Accipiter dendro-falco, *Briss. Orn.* i. p. 375 (1760).
Falco subbuteo, *Linn. Syst. Nat.* i. p. 127 (1766); **et auctorum plurimorum**—*Temminck*, *Naumann*, *Gould*, *Schlegel*, (*Jerdon*), (*Hume*), *Sharpe*, &c.
Falco barletta, *Daud. Traité*, ii. p. 129 (1800).
Hypotriorchis subbuteo (*Linn.*), *Boie*, *Isis*, 1826, p. 976.
Dendrofalco subbuteo (*Linn.*), *Gray*, *List Gen. B.* p. 3 (1840).

The Hobby has become a rare and local bird in England. It was formerly a regular summer visitor; but the number of occurrences during winter suggests that some of the Scandinavian birds do not migrate further south. In the northern and western counties it is much rarer; but in Scotland it is a regular though local visitor, and is said occasionally to breed in Orkney and to pass the Shetlands on migration. Only two instances of its occurrence in Ireland are known.

Its principal breeding-grounds are the forest districts of the north of France, the Netherlands, Germany, Denmark, South Scandinavia, and Russia south of lat. 65°. South of the Baltic a few, probably migrants from the north, are seen in winter. In Spain, the south of France, Switzerland, Italy, Turkey and Greece, Asia Minor and Palestine it is principally known on the spring and autumn migrations; but in all these countries a few remain to breed and a few stop the winter. It passes through North Africa and the Canaries on migration, and winters in South Africa as far as the Cape; but Heuglin obtained one example in winter in Egypt. Eastwards it breeds in Northern Persia, Turkestan, and the whole of Siberia south of lat. 64°. It passes through Cashmere, Mongolia, North China, and Japan on migration, and winters in Northern India and Southern China. There are two tropical forms of the Hobby which appear to have become completely differentiated and to be now good species:—*F. cuvieri* from South Africa, which may always be distinguished by its smaller size and deep-chestnut breast; and *F. severus* from India, the Burma peninsula, and the Malay archipelago, a species very nearly allied to the last, with the same chestnut breast, but unspotted.

The Hobby is a miniature Peregrine, not only in appearance but also in his character. Swift as the Merlin is, the Hobby is still swifter; and his wonderful power of flight makes him bold and courageous. So eager is he in the pursuit of his game, that in the ardour of the chase he has been known to dart through an open window of a carriage on the road, and to enter a room in the attempt to seize a caged bird. His courage, however, is tempered with prudence, not to say cunning. An instance is recorded ('Naumannia,' vi. p. 261) of a pair of Hobbies in a forest near Munich who fed their young by dropping food from a considerable height into the nest on a lofty beech, so as to keep out of gunshot of the forester and his overseer, who took it in turns to watch the nest in order to shoot them. At this nest another remarkable fact was observed. Although both parent birds were shot for six or eight successive years, and during that period no young birds were reared from this nest, yet each summer found it tenanted by a new pair. I have observed exactly the same fact with regard to the Merlin, which is all the more extraordinary since the latter bird breeds on the ground. Like the Merlin, and probably many other birds of prey, the Hobby soon finds another mate if one of the pair are shot. An instance is recorded (Stevenson, 'Birds of Norfolk,' i. p. 18) of a female who three times in the same season found herself a fresh mate after the gamekeeper had shot the male. We must not call him a relentless gamekeeper; for he allowed her to rear a brood with her fourth consort. The Hobby seems to swim or dive through the air, occasionally hovering for a moment and then renewing his flight. He is essentially a forest bird, but hunts on the plains, devouring his prey on the spot like a Peregrine. The nest is always in a tree, and generally a lofty one, seldom if ever far in the forest, generally in some outlying plantation, but occasionally in an isolated tree by a river-side. The Hobby is very bold in attacking intruders on its breeding-grounds, both parents being generally seen at the nest until the young are old enough to require much food. The vicinity of its treasures is often betrayed to the egg-collector by its persistent endeavours to frighten him away. It seldom builds a nest of its own, usually appropriating the deserted nest of a Crow. It is a late breeder; and although it arrives at its breeding-grounds in Pomerania, where it is a common bird, in the middle of April, it does not breed until June, when the young Crows have already flown. Four is the usual number of eggs; but three are not uncommon, and five are occasionally found.

The Hobby still breeds in some parts of England. My friend Mr. Frank Norgate found it breeding in Foxley Wood near Norwich last year, and saw three nests of this rare Falcon in the same wood one day last spring, each containing three eggs. They were all old Carrion-Crows' nests in oak trees. Mr. Norgate robbed them earlier in the spring on purpose to leave the nests empty for the Hobbies to take possession of. Two of them contained Carrion-Crows' eggs, and the other those of the Kestrel. When he afterwards visited the nests he found them all tenanted by Hobbies. In none of the three cases did they appear to have added any fresh lining to the nests. On approaching each of them he found one of the parent birds, probably the male, perched in an adjoining tree. He flew off before the female left the nest; and whilst Norgate was climbing the trees both parents flew round in an excited and alarmed manner, sometimes diving amongst the brushwood and occasionally very near him, so that he could see their colours very distinctly. Their cries reminded him very much of those of the Kestrel. In one of the nests and on the ground near another were feathers of the Swallow.

Mr. John Cordeaux also informs me that the Hobby still nests annually in North and Mid Lincolnshire.

Its food consists of small birds, especially Larks, which it is said always to catch on the wing. It must, however, occasionally feed on the ground, as Dr. Holland informs me that ants have been found in its crop, and Bogdanow says that it eats lizards and mice. It teaches its young to hunt by dropping food for them to catch, and gives them further lessons by leading them to practise hawking on dragonflies. Dr. Holland informs me that the period of incubation lasts three weeks, and that, although it annexes an empty Magpie's or Crow's nest, it relines it with hair, wool, and feathers. The eggs of the Hobby vary in length from 1·8 to 1·6 inch, and in breadth from 1·4 to 1·3 inch. They are scarcely distinguishable from those of the Kestrel, but are generally rougher in texture and not so brilliant a red or so boldly spotted.

The general colour of the upper parts is greyish or bluish black; the two middle tail-feathers uniform greyish black, the others barred with a lighter colour, the tips also lighter; moustachial line broad and black. Underparts white, slightly suffused with rufous, the breast and flanks longitudinally marked with blackish. Thighs, and under tail-coverts deep rusty red. Cere, bare space round the eye, and legs yellow; claws black; bill horn-colour, darkest at the tip; iris dark brown. The female bird is larger than the male; her colours are duller, and the streaks broader.

FALCO ÆSALON.

MERLIN.

(Plate 4.)

Accipiter litho-falco, *Briss. Orn.* i. p. 349 (1760).
Accipiter æsalon, *Briss. Orn.* i. p. 382 (1760); **et auctorum plurimorum**—(*Gmelin*), (*Temminck*), (*Naumann*), (*Gould*), (*Yarrell*), (*Schlegel*), (*Newton*), (*Heuglin*), (*Dresser*), &c.
Accipiter merillus, *Gerini, Orn. Meth. Dig.* i. p. 51, pls. xviii., xix. (1767).
Falco æsalon (*Briss.*), *Tunstall, Orn. Brit.* p. 1 (1771).
Falco regulus*, *Pall. Reis.* ii. Anhang, p. 707 (1773).
Falco lithofalco (*Briss.*), *Gmel. Syst. Nat.* i. p. 278 (1788).
Falco smirillus, *Savign. Ois. de l'Egypte*, p. 40 (1810).
Falco sibiricus, *Shaw, Gen. Zool.* vii. pt. 1, p. 207 (1809).
Falco cæsius, *Wolf, Taschenb.* i. p. 60 (1810).
Hypotriorchis æsalon (*Briss.*), *Boie, Isis*, 1828, p. 314.
Æsalon æsalon (*Briss.*), *Kaup, Natürl. Syst.* p. 40 (1829).
Æsalon lithofalco (*Briss.*), *Bonap. Rev. et Mag. de Zool.* 1854, p. 536.
Æsalon regulus (*Pall.*), *Blyth, Ibis*, 1863, p. 9.
Lithofalco æsalon (*Briss.*), *Hume, Rough Notes*, i. p. 89 (1869).

The Merlin is one of the smallest of our native Falcons, yet possessed of marvellous rapidity of flight and courage. It is a bird, too, of no small amount of interest to the ornithologist, partly from the many conflicting statements regarding its habits, and partly owing to the wild grand nature of its haunts. The Merlin breeds throughout the mountainous districts of Great Britain, from the moorlands of Derbyshire northwards to the Outer Hebrides and the Shetlands, partly retiring to the lowlands and southern counties in winter, where a few pairs casually remain to breed.

The same remarks apply to this species in Ireland. It breeds throughout the island in the mountain districts; and numbers seek the lowlands in winter. This species is confined to the northerly portions of the Old World. It breeds throughout North Europe, Iceland, and the Faroes; and a specimen was caught at sea by Mr. E. Whymper, on his voyage to Greenland, in May 1867, in lat. 57° 41′ N. and long. 53° 23′ W., the most westerly recorded limit of this species. It winters in South Europe and North Africa, where, according to Loche, a few remain through the summer, retiring to the highest districts to breed. Eastward it breeds throughout Northern Siberia, passing through Mongolia and Turkestan on migration, and wintering in South China, North-west India, and Scinde.

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* This is another instance of the folly of still adhering to the law of priority, which has done so much mischief to the study of birds. Sharpe, in his 'Catalogue of the Birds in the British Museum,' adopts the name of *F. regulus* for the Merlin. Dresser was fortunately able to reinstate the name in all but universal use by discovering that Tunstall, in a mere catalogue of British birds (which had the good fortune to be published two years before Pallas wrote), had used Brisson's name. The next ornithological revolutionist will undoubtedly reject both these names in favour of that of Gerini (which is unquestionably the earliest clearly defined name known at present), if in the meantime the law of priority does not meet with the fate it deserves.

Doubt encircles the movements of this, the prettiest of our British Falcons. It was formerly considered to be only a winter visitant to this country, which, so far as the southern portions are concerned, is no doubt correct. It has also been said to be only a summer visitant, and, like the Swallow, to take its departure southwards at the advent of winter. These several statements have undoubtedly been made by persons whose experience of the bird has either been exclusively confined to its summer or its winter quarters, and, although to a certain degree correct, they are misleading. The Merlin, in those districts frequented by it, from North Derbyshire to the Shetlands, is a resident species, living on the moorlands and the mountains in summer, and retiring to more cultivated districts for the winter, in a similar manner to the Meadow-Pipit. Even in the wild country of the Shetlands, the Western Isles, and the Highlands the Merlin is found throughout the year—in summer on the mountains, in winter lower down, in more sheltered districts and on the sea-shore. The fact that the birds are almost always shot off most of their breeding-places has doubtless given rise to the opinion that they were migratory, these breeding-places being tenanted the following season most probably by young birds or birds passing over Great Britain on migration to more northern haunts, or the birds that have spent the winter in the southern counties. The birds found wintering in the south of England are, probably, migrants from North Europe, and not bred in Britain at all. It is quite possible that all the young birds bred with us migrate southwards, even though the old birds do not—a fact which is common to all, or nearly all, raptorial birds. Hence, if the old birds be shot, the breeding-places are not occupied until the return of the young birds, who seize upon any locality where the former occupants have been destroyed. The latter would, if left unmolested, have remained for the winter, or wandered to the lowlands, to return in spring, leaving their young only to seek winter-quarters in the south.

In summer the Merlin's haunt is the wild moors and mountain wastes, the home of the Red Grouse—the brown breezy hills and valleys where grey rocks overgrown with heather and bilberry abound and steep mountain rifts and gorges occur. In winter it quits the moors, and descends to the cultivated districts, even to the sea-coasts. At this season it will also, like the Kestrel, frequent towns, and take up its quarters in church-towers, cathedrals, and large public buildings, preying upon the Pigeons or the Sparrows frequenting those places, or sallying out at intervals to the surrounding country in search of more varied fare. The reasons for this change of haunt are obvious. In the spring and summer the moorlands and mountain-sides are replete with the food of its choice—the Moor-Pipits, Twites, and young Grouse; but in winter these Twites and Pipits are compelled to seek fresh quarters. The Grouse are strong on the wing; and the Merlin must follow his quarry to the lowlands, or prey upon the shore-birds, or seek the cover of our cities to feed upon the Sparrows and the Pigeons.

When the first signs of spring are seen on the moorlands, and the Snipes, the Titlarks, and the Peewits have retired to them to breed, you may often get a sight of this little warrior bird. He preys upon these birds of the moor, which his rapid powers of flight enable him easily to fly down without resorting to the manœuvres which the clumsier Sparrow-Hawk is compelled to take advantage of. These moors are the constant breeding-place of three species of Hawk—the Kestrel, the Sparrow-Hawk, and the Merlin. The Kestrel hovers over the ground at a considerable height, and pounces down on a mouse and occasionally a lizard or a young Grouse, as the pellets it casts up abundantly testify. The Sparrow-Hawk skims over hill-tops or hedges, beats the bushes and the shrubberies, or comes round rocks on its prey unawares. The Merlin, on the contrary, fairly flies it down. A true Falcon, it descends to none of these artifices, but takes its prey by the aid of its superior power of wing alone. Nothing seems to stop it; and once the pursuit is commenced, rarely indeed does the quarry escape. Dixon once saw this little Falcon "in chase of a common Sandpiper, which it had started from a heath-grown bank. Pursuer and pursued strove their utmost, the poor Sandpiper doubling, rising, and turning from side to side alternately, and its relentless pursuer following closely every movement as though guided by a common impulse. Over a mountain-lake the chase was given, offering a fine uninterrupted view of each bird's great power of wing, the Sandpiper gaining a brief respite by hiding amongst a tuft of herbage on the shore. But the Merlin, nothing daunted, waited the rising of its victim, and the pursuit was renewed. The poor bird wheeled rapidly round, then darted forward, but all in vain; the Merlin's superior power of flight and endurance prevailed, and the poor Sandpiper, wearied and exhausted, with a cry of terror, was struck down. No bird of prey pursues its quarry with more vigour; and a chase of this description once seen can never be forgotten." The "Summer Snipe," however, is not the Merlin's only prey. The Lapwings and Golden Plovers, although almost twice its size and weight, are easily taken; so are the young Grouse, Snipes, and the various smaller birds of the wilds: none can escape him, not even the swift-flying Swallow; and he is justly feared as the terror of the moors. No wonder the gamekeepers are up in arms against him. Yet when we bear in mind the protective tints and the cunning wiles of those creatures that form his sustenance, we know full well that his ravages are kept within reasonable limits. In addition to birds of various kinds, from a Wren to a Partridge, the Merlin also feeds on the larger insects and beetles, like all our small Falcons; in proof of which witness the remains of wing-cases &c. seen in the castings of this species; but it is not known that mammals of any description whatever are included in his fare.

Like most birds of prey, the Merlin has certain favourite places whither it conveys its captures to devour them at leisure. A large boulder of rock or heath-grown mound often forms the Merlin's dining-table, to which it regularly resorts; and the heaps of feathers, bones, and occasionally the entrails which strew the place inform the observant naturalist of his presence. Merlins are eminently fond of sitting amongst the stones and rocks which are so plentifully strewed in their favourite haunts, from which peculiarity the bird has gained the provincial name of "Stone-Falcon." Rarely indeed does it perch on trees, the ground or rocks being almost invariably its resting-place. The Merlin's power of flight and courageous spirit have very naturally caused it to rank as one of the falconer's special favourites. Of all the smaller Hawks he is classed as the best; and even in our own days, when falconry exists almost as a tradition alone, the Merlin is trained to take small birds, such as Larks and Snipes, the female bird, from her superior size and power, being successfully flown at much larger game, such as Plovers and Partridges.

The Merlin's haunt in the breeding-season is indeed a wild and lonely one, amongst the remotest parts of the moors, where the silence is rarely broken, save by the notes of those few birds who share its favourite solitudes—the Red Grouse, the Moor-Pipit, the Curlew, and the Snipe. A true bird of the mountain indeed it is; and the observer must therefore be prepared for a long tramp over the heather, and doubtless a wetting from the mists which so frequently enwrap its breeding-grounds, if he wishes for a sight of its beautiful eggs and scanty nest. Like most birds of prey, the Merlin is a life-paired bird, and shows a strange affection for certain haunts, and breeds regularly in one situation for years. Certain localities are favoured as Merlins' breeding-places; and although the birds are repeatedly disturbed and shot, still the same grounds are tenanted. I have known a patch of heather, some couple of hundred yards square, containing a Merlin's nest for many years, whilst no other breeding-place could be found nearer than eight or ten miles. There would be nothing extraordinary in this if it could be proved that the same pair, or their descendants, annually visited and occupied the same breeding-stations; they might easily be supposed to have obtained a vested right in the estate, and to have defended it successfully against all comers, which is undoubtedly the case when the birds are not molested. But on one of the moors near Sheffield the gamekeepers used to shoot or trap one or both of the parent birds (generally both), and in no case for more than ten years did they ever allow the young birds to get away. They found out by experience that it was of no use to shoot one of the birds before they had begun to breed, because in such cases the survivor found another mate in a few days. They shot or snared the cock bird as soon as they could after the hen had begun to sit. In the neighbourhood of the nest were little rocky elevations on the ground, which the cock bird used as feeding-places, and which were easily found by the feathers of young Grouse and other small birds scattered round them. Upon these knolls traps were set; and as soon as the cock bird was caught the hen was easily shot off the nest. For several successive years this was done; but, curiously enough, in the summer of 1872 no Merlins appeared in the locality. The only way in which to account for the selection every year of the same locality by a fresh pair of birds seems to be to suppose that the Merlins migrate *en masse*, and that as they pass each recognized breeding-place, if the former occupants are not there to take possession, another pair immediately occupy it. The facts of the case seem to warrant the conclusion that the selected sites for breeding are well known to a large circle of Merlins; otherwise it is difficult to account for the choice always falling upon the same site, out of an indefinite number of others apparently equally eligible.

The following is a history of the fate of each pair of birds for five successive seasons in two localities:—

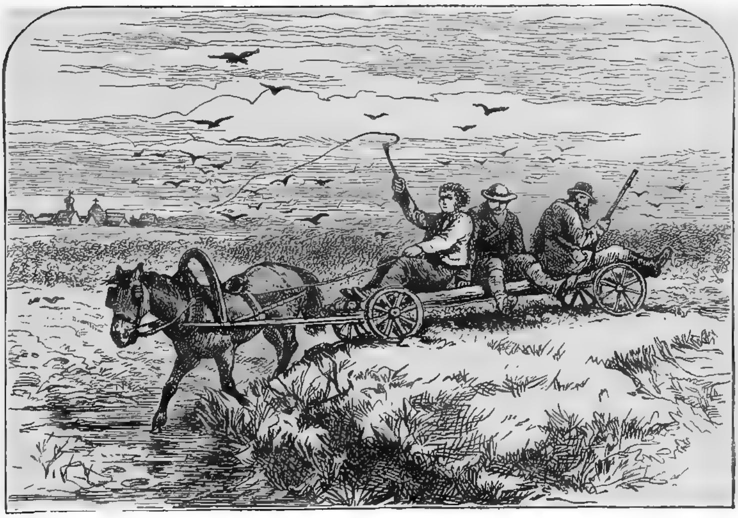
1869. Nest near Strines. Hen shot as she was bringing food to the young. Cock shot with food in his mouth a quarter of an hour afterwards. Young all destroyed.
1870. Nest on the same bank. Cock trapped and killed in the morning. Hen trapped in the afternoon. Eggs all taken.
1871. Nest on the same bank. Two eggs taken. Nest afterwards forsaken. Birds very wild and neither shot this season.
1872. No Merlins appeared this year.
1873. Nest on the same bank. Eggs taken and both birds destroyed.
1869. Nest near Ashopton. Both parents and all the young were destroyed by a party of gamekeepers after the young had left the nest.
1870. Hen shot soon after arrival. The cock found another mate, which was soon afterwards also shot and again replaced. Both these were shot before the nest was discovered.
1871. Nest on the old bank. Both old birds and the young were destroyed.
1872. No Merlins appeared this year.
1873. Nest on the old bank; fate of birds unknown.

Although the Merlin arrives on the moorlands from its winter haunts late in March or early in April, it is a somewhat late breeder. The date of nidification is evidently chosen with relation to an abundant supply of food for the young. As in the Cyclades Eleonora's Falcon (*Falco eleonoræ*) postpones its operations until August, so that the young may be fed upon the flocks of Quails returning southwards on their autumn migrations, the Merlin lays its eggs about the middle of May, so that the voracious young may be fed upon young Grouse. The site selected for the nest varies in different localities; for in Lapland both Wolley and Wheelwright mention instances of nests being found in trees, and Collett says that in South Norway it frequently takes possession of an old nest in a tree, like the Kestrel. On the Faroes it is said to breed on the cliffs. On our own moorlands a site is chosen on the ground in the tall heather, or in some flat spot amongst the rocks on the steep slopes at the foot of the precipitous ridges so often met with in these localities. The site usually slopes down to a stream and is one that commands a good view of the surrounding country. In most cases a small hole is made; whatever roots and dry grass may chance to be upon the spot are scratched into the rudiments of a nest; and the only materials actually selected by the bird appear to be a few slender twigs of "ling" to form the outside of the structure, and which are generally broken from the heather overhanging the nest. When on the rocky slopes, it is usually made under a heather tuft, or beneath a mass of coarse herbage, and is then but a mere hollow in the scanty soil, as often without a few ling-twigs as with them. The eggs of the Merlin are usually five in number, sometimes only four, and somewhat rounded in form. In colour they closely resemble those of the Kestrel and the Hobby; but the colour is a more decided brown, without the brick-red tints so commonly seen on newly laid eggs of those birds. Like all Falcons' eggs, they differ considerably in size and intensity of colour, varying through all the types of Falcons' eggs figured on Plate 4, with the exception of the Sparrow-Hawk's. Some specimens are deep reddish brown, so richly coloured as to hide all trace of the ground-colour; others are pale red, with most of the deep brown confined sometimes to the large end and sometimes to the small end. Some specimens are pale cream in ground-colour, evenly and beautifully marbled with deep purplish red, or finely dusted over the entire surface with minute specks of blackish brown. The eggs of the Merlin vary from 1·65 to 1·5 inch in length, and from 1·2 to 1·15 inch in breadth. Like most birds of prey, the Merlin exhibits very little outward anxiety when its nest is approached; but sometimes, especially if there be young birds in the nest, it will fly round in circles, occasionally uttering a low tremulous scream, a note resembling the call of the Kestrel.

When the young are strong upon the wing and well able to shift for themselves, they undoubtedly migrate southwards, following in the wake of the armies of migratory birds seeking their winter-quarters, and which furnish them abundant food. But the old birds merely shift their quarters from the moorlands at the approach of winter, and seek the lower and more cultivated lands or the seashore, places where the smaller birds abound, or where the various wading-birds spend the winter months. Sometimes a pair of Merlins will take up their station for the winter in a range of sea-cliffs, where they may from time to time be seen sitting patiently on the rocks or amongst the stones of the beach, ready to dash out and give chase to the first flock of "Stints" that may skim past. In the autumn months the Merlin is one of the worst enemies of the myriads of Thrushes and other small birds on their way southwards, taking up his abode in the neighbourhood of their line of flight, and committing sad havoc in the ranks of the terrified songsters. In fine, the Merlin's habits are much those of the Peregrine over again. The same feats of daring recorded of the larger Falcon may equally be related of the "Falconet." He is indeed a bold little fellow, seems afraid of nothing, and wins the admiration of all who make his acquaintance in the field. It is to be feared, however, that the incessant warfare carried on against him by the game-preserver will eventually exterminate him from those haunts to which he is so fondly attached, and of which he is one of the finest ornaments.

The general colour of the Merlin's upper plumage is slaty blue, rufous on the nape, and with a dark shaft to every feather; the lower plumage is rufous, striped longitudinally with blackish brown; tail with a broad, black, subterminal band, and traces of other bars on the inner webs; beak bluish, darker at the tip; cere and legs yellow; claws black; irides dark brown. There is much difference of opinion as to the colour of the female's plumage. Such high authorities as Macgillivray, Naumann, and Nilsson all agree in stating that the female bird is very differently coloured from the male. On the other hand, Sharpe, in his first volume of the 'Catalogue of Birds in the British Museum,' maintains that the female is similar to the male, but a little larger. There can be no doubt that females, probably very old birds, do sometimes assume the male plumage; for an example was obtained by Dr. Scully at Gilgit, in North-west India. It was shot in December, carefully sexed by Dr. Scully himself, and in colour resembles most closely the male bird. It is the opinion of Mr. Gurney, than whom we have no better authority on raptorial birds, and who has examined this interesting specimen, that the reason why this advanced stage of plumage is not better known in Europe is probably due to the fact that the Falcon is so rarely allowed to attain the fully adult dress. Young birds are first covered with greyish-white down. In first plumage they have the upper parts rufous-brown, spotted with darker brown; tail-feathers brown, barred with rufous-brown and tipped with creamy white; the underparts whitish, broadly striped with dark brown, becoming almost pure white on the throat.

The Merlin has several near allies. On the American continent it is represented by a species divisible into three races, which Mr. Ridgeway treats as only varieties of the European species—*F. columbarius, F. richardsoni,* and *F. suckleyi.* These races breed in the northern portion of the American continent, in the Atlantic region, the region of the plains, and the region of the north-west coast respectively. They are all browner and darker than our bird, and have the black spots on the tail developed into transverse bars, which in *F. suckleyi* are almost confluent. In the Old World there are two tropical forms of the Merlin, which, however, appear to have become well-defined species, *F. chicquera* inhabiting India, and *F. ruficollis* Africa. They may at once be distinguished from the Merlin by having the entire head and neck chestnut. They are, however, so nearly allied to each other that by some ornithologists they are considered one species; the African race is said to be paler, and to have the bars on the breast closer together.



FALCO VESPERTINUS.

RED-FOOTED FALCON.

(PLATE 4.)

Falco vespertinus, *Linn. Syst. Nat.* i. p. 129 (1766); **et auctorum plurimorum**—*Macgillivray, Strickland, Schlegel, Blasius, Newton,* (*Sharpe*), (*Gould*), &c.
Falco rufus, *Scop. Del. Faun. et Flor. Insubr.* ii. p. 36, pl. xix. (1786).
Falco rufipes, *Beseke, Vög. Kurl.* p. 20, t. 3, 4 (1792).
Falco erythrourus, *Rafin. Carratt. Nuovi Gen. Av.* p. 5 (1810).
Cerchneis vespertinus (*Linn.*), *Boie, Isis,* 1828, p. 314.
Pannychistes rufipes (*Beseke*), *Kaup, Natürl. Syst.* p. 87 (1829).
Erythropus vespertinus (*Linn.*), *Brehm, Isis,* 1830, p. 796.
Falco rubripes, *Less. Traité,* p. 93 (1831).
Tinnunculus rufipes (*Beseke*), *Kaup, Classif. Säug. u. Vög.* p. 108 (1844).
Tinnunculus vespertinus (*Linn.*), *Gray, Gen. B.* i. p. 21 (1844).

The Red-footed Falcon is an accidental visitor to the British Islands, from twenty to thirty specimens having been recorded at various times, one or more in Scotland, and one in Ireland. On the continent of Europe it is also an accidental visitor to Spain, France, and Scandinavia. Its breeding-quarters are Hungary, the whole of Russia south of lat. 65°, and South-western Siberia as far east as Krasnoyarsk. Lindermeyer's statement that it breeds in Greece, and Loche's assertion that it breeds in Algeria, are neither of them verified by subsequent travellers in those countries, and are probably erroneous. It passes through Germany, Italy, Turkey and Greece, Asia Minor, Persia and Turkestan on migration, and winters in Damara Land, and occasionally in North-east Africa. In Siberia from Lake Baikal eastwards this species is represented by *F. amurensis,* the males of which have the under wing-coverts and axillaries white instead of slate-grey. This species breeds as far south as Eastern Mongolia and North China, and winters in India and South-east Africa. This is one of the most curious cases of migration and geographical distribution known. That the Red-footed Falcon, ranging during the breeding-season from the valley of the Dvina to the valley of the Yenesay, should winter in Africa is not an unprecedented fact. The Willow-Warblers and Sedge-Warblers, which breed in the last-mentioned valley east of Calcutta, apparently do the same. One can easily imagine that two such very common birds have been obliged to widen their breeding-range, and to extend it eastwards by degrees as they increased in numbers; and one can also understand that they would naturally retain their old winter-quarters until a "Zugstrasse" or route of migration would gradually be formed from Central Siberia to Africa. This line of migration probably runs from east to west in Siberia, as the birds would not be likely to deviate east of their usual route until they had arrived at their breeding-grounds and found them too crowded. The fact that the winter-quarters of the eastern representative of the Red-footed Falcon are partly in India and partly in the Transvaal is much more difficult to understand; and I am unable to suggest any explanation of the anomaly.

The Red-footed Falcon is a bird of easy though not very rapid flight. It sails and hovers for a moment like a Hobby, but lacks the dash necessary to catch birds on the wing. Its food is chiefly insects. Some of these, such as beetles and ants, it obtains on the ground; but most of its food is captured in the air. It is a very gregarious bird; and flocks may be seen hawking backwards and forwards with great regularity, turning sharp round at the end of their beat. This is principally observed towards evening, when night-flying moths are on the wing. In the daytime they catch grasshoppers and dragonflies. They are rarely if ever found in the forest, but are very partial to swampy ground thinly scattered over with trees, which afford them convenient perching-places in the midst of their insect prey. Nordmann mentions their great abundance in the botanical gardens at Odessa; and they are equally common in the gardens of the club at Krasnoyarsk, the limit, so far as is known, of their eastern range. At night they roost as close together as they can, choosing, if possible, the bare branches of a pine. They also breed in colonies, occasionally five or six nests being in one tree. It is said that they rarely if ever build a nest, but appropriate old nests of Crows or Magpies, or especially of Rooks. Cochrane says that in Hungary they arrive in the middle of April and breed early in May. Goebel says that in South Russia their usual breeding-time is early in June, and that they take possession of the nests of the Rooks after they have done with them, but that they frequently breed in solitary pairs, especially in gardens, in old Magpies' and Crows' nests. He adds that sometimes they breed earlier, for he once took a nest on the 13th of June with six young, which had been amply provided by their parents with field-mice, stagbeetles, and a green lizard. The number of eggs varies from four to six. In shape, size, and colour the eggs of the Red-footed Falcon approach very near to those of the Kestrel. As the result of a careful comparison of 147 eggs of the former with 289 of the latter, Goebel arrives at the following conclusions:—The eggs of the Kestrel are coarser-grained, have much more lustre, and are, on an average, larger, and not only absolutely but proportionally heavier. The colour of the Kestrel's eggs is a darker, browner red compared with the yellower red of the eggs of the Red-footed Falcon. The eggs of the latter vary in length from 1·6 to 1·25 inch, and in breadth from 1·2 to 1 inch.

The adult male Red-footed Falcon has the whole plumage dark slate-grey, shading into silvery grey on the wings, and into black on the tail, except the thighs, vent, and under tail-coverts, which are chestnut; cere and bare space round the eyes orange-red; irides hazel; bill orange at base, dark horn-colour at tip; legs and toes brownish red; claws yellow, darkest at tips. The adult female has the general colour of the upper parts below the nape, including the tail, slate-grey, not so dark as in the male, each feather broadly barred with darker grey. The wings are not so silvery a grey as in the male; their under coverts are chestnut, and the quills are broadly barred with white on the inner web. The head, nape, and the whole of the underparts are dull chestnut, paler on the throat; the feathers round the eye dark brown. Soft parts as in the adult male, but paler; bill more uniform horn-colour.

The young male has the general colour of the upper parts except the nape slaty brown, each feather broadly margined with pale rufous. The quills are dark brown, almost black, narrowly tipped and margined with buffish white, and ovally barred with white on the inner webs. The tail is evenly barred with rufous, less distinctly so on the two centre feathers. The nape and entire underparts are pale buff, the former obscurely and the latter broadly streaked with brown, except on the vent, under tail-coverts, and thighs, which are uniform buff; the feathers round the eye brownish black. Bill and cere horn-colour, paler on the lower mandible. Legs and toes paler than in adult birds. Lastly, the young female resembles the young male; but the stripes on the underparts are broader.

It will thus be seen that the adult male bird may always be recognized by its uniform slate-grey plumage, unbarred and unstreaked; the young of both sexes by the pale margins to the feathers of the upper parts, the barred tail and broadly streaked pale underparts; the fully adult female by her uniform unspotted chestnut underparts. The young birds in first plumage very closely indeed resemble young Hobbies; but may always be distinguished by the row of conspicuous oblong white spots on the primaries, and have the outside web of the outside tail-feather barred as well as the inside web. The so-called young male figured in Dresser's 'Birds of Europe' is the not quite adult plumage of the female of the second year, which still shows a few streaks on the underparts. Young Red-footed Falcons may be distinguished from young Merlins by their thighs, which in the latter species are streaked, and by the oblong spots on the primaries of the former species, which in the latter are represented by pale dull chestnut bars.

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FALCO TINNUNCULUS.

KESTREL.

(PLATE 4.)

Accipiter alaudarius, *Briss. Orn.* i. p. 379 (1760).
Accipiter tinnunculus, *Briss. Orn.* i. p. 393 (1760); **et auctorum plurimorum**—(*Linnæus*), (*Temminck*), (*Naumann*), (*Gould*), (*Sharpe*), (*Newton*), (*Dresser*), &c.
Falco tinnunculus, *Linn. Syst. Nat.* i. p. 127 (1766).
Falco fasciatus, *Retz. Faun. Suec.* p. 70 (1800).
Falco brunneus, *Bechst. Orn. Taschenb.* p. 38 (1802).
Cerchneis tinnuncula (*Linn.*), *Boie, Isis*, 1828, p. 314.
Ægypius tinnunculus (*Linn.*), *Kaup, Naturl. Syst.* p. 29 (1829).
Tinnunculus alaudarius (*Briss.*), *Gray, Gen. B.* i. p. 21 (1844).
Tinnunculus tinnunculus (*Linn.*), *Heugl. Peterm. Mitth.* 1861, p. 20.

The Kestrel is the commonest bird of prey in the British Islands, and breeds almost everywhere, and is equally abundant in well-wooded districts and rocky moors. Amongst the grand scenery of the Highlands it is one of the most characteristic birds. It is common in the Hebrides, and breeds on most of the rocky islets, even on isolated St. Kilda and the Orkneys; in these northern haunts, however, the bird is merely a summer visitor, and retires southwards at the approach of winter. In Ireland the Kestrel is also widely distributed in all suitable localities, but does not appear to be so common as it is in Scotland and England.

The Kestrel breeds in almost every part of the Palæarctic Region, and is common up to lat. 60°. Further north it rapidly becomes rarer; and north of the arctic circle its appearance is only accidental, though there seems to be good reason to believe that Wolley once obtained a nest in Lapland as far north as 68°. North of the Alps it is principally a summer migrant; but in the countries south of the Baltic a few remain during the winter. South of the Alps it appears to be a resident. The Kestrels breeding in North Africa receive large accessions to their numbers by migrants from Europe during winter; and at that season of the year it almost reaches the equator on the west of Africa, and goes slightly beyond it on the east of that continent. In Asia the Kestrel is equally abundant. In the valley of the Yenesay I found it very common in lat. 58°; and Middendorff obtained five examples from a flock which appear to have wandered out of their way (they were all five young females) on migration in lat. 71°. In Persia it is very common in summer; but the greater number winter in Baluchistan and Arabia. In Turkestan the Kestrel is principally known as a spring and autumn migrant, but a few remain both winter and summer. It breeds in the Himalayas, but in India is principally known as a winter visitor, though there are resident Kestrels on the mountains of

South India. It breeds in Mongolia, Japan, and China, and probably in Formosa and Hainan. It winters in Burma.

A species having such a wide range as the Kestrel, breeding in such various climates, and consequently subject to the influence of different kinds of food and variations in the difficulty of procuring it, in addition to the direct influence of variations in the amount of sunshine, in the degree of heat and cold, and in the amount of moisture, must of necessity develop subspecific forms or climatic races. In the islands off the coast of West Africa (Cape Verd, Canary, and Madeira) the humidity of the climate has produced a dark race, which, as is so often the case with insular forms, is also a small race. This subspecies has been called *F. neglectus*, and varies in length of wing from 8·4 to 9·4 inch, and has the dark spots on the upper parts larger than usual. On the continent size will not help us much in distinguishing the different forms, as they all vary in length of wing from 9·3 to 10·4 inch. In birds breeding in Spain, Tangiers, Abyssinia, the Himalayas, Mongolia, and China, the slate-grey of the head and tail and the chestnut of the back are also dark; and these differences have been considered by some writers to be of sufficient importance to constitute a subspecies, to which the name of *F. interstinctus* has been given. British birds, however, are somewhat intermediate, and are decidedly darker than examples from Siberia, which are the palest of all. In Japan the dark richly spotted form of the West-African islands reappears; but as it retains the dimensions of its Chinese neighbour, whom it often visits in winter, it also has been dignified with a name, that of *F. japonicus*. In the mountains of South India, however, a resident Kestrel occurs, which is scarcely distinguishable either in size or colour from the West-African island form, and, if it be distinguished from *F. tinnunculus*, must also bear the name of *F. neglectus*. It seems probable that the Hainan birds must also be referred to this subspecies. There is nothing extraordinary in the fact of the extreme western form reappearing in the extreme east. It is the normal state of things with the more northern Palæarctic birds. The range of the Kestrel scarcely reaches a latitude high enough for an extreme arctic form to be produced; but its range in both the east and west is sufficiently south for a tropical form to be developed.

In newly moulted birds the differences of colour of these local races are clearly perceptible in both sexes; but in abraded plumage they are not always easy to determine. Ornithologists are not agreed on the best way of cataloguing these climatic races; but no true naturalist can ignore them. To give them each a separate binomial name is liable to lead to an exaggerated idea of their specific value; and the American ornithologists appear to have acted wisely in following the plan adopted by Linnæus, of calling the local races varieties. The result, if it be scientifically accurate, is at the same time somewhat complicated. The British Kestrel being an intermediate form between the central-southern race and the semiarctic one, would have to bear the name of *Falco tinnunculus* var. *tinnunculus-interstinctus*, always supposing that the type of Linnæus was a semiarctic form. If the facts of nature are complicated, it is perhaps unreasonable to expect that their scientific nomenclature should be otherwise.

From its habit of hovering in the air, the Kestrel is probably the best-known and most easily recognized of all British raptorial birds. This peculiarity has gained for it the colloquial name of Windhover. It hangs in the air, poised over one spot, with outspread wings and tail, as if suspended by a thread. Seldom, indeed, can one take a walk in the country without making a passing acquaintance with this graceful little Falcon. A favourite locality for the Windhover is in rocky valleys: the dales of the Peak of Derbyshire are one of its favourite haunts, where it nestles in the lofty limestone cliffs. Amongst all the dales and moors and rocks of Yorkshire its pretty gambols in the air, its wonderful evolutions and graceful movements, form one of the most charming accessories of the wild impressive scenery of many parts of this county.

Easily distinguished, indeed, it is from all others of its order; and its presence is readily detected as it hovers in the air

> "As if let down from the heaven there
> By a viewless silken thread,"

now advancing towards you, flying up wind, some thirty feet above the earth, its wings flapping hurriedly or held perfectly motionless. Now it is directly above you; you see its broad head turning restlessly from side to side; the wings seem in a perpetual quiver, and the broad tail is expanded to its fullest extent. Now it glides slowly forward for a few yards, pauses for a moment intently surveying the ground beneath, then once more, with a few vigorous flaps of its wings, darts off in a sidelong direction, and poises itself in the air as before. Again it proceeds a little distance, hovers, and bounds forward. Then, by describing a broad circle, it turns completely round, and flies rapidly down wind, but soon suddenly stops and hovers again. Something has arrested its attention; a mouse is below it in the meadow-grass; and, closing its wings, it drops like a stone, throwing out its wings again just before it reaches the earth, hovers a moment, clutches its prey, and as rapidly mounts the air, and bears off in direct and rapid flight to some quiet haunt, where it can devour its prey in peace. Sometimes you may see it at a stupendous height, wheeling round and round in circles; and when passing from one place to another it usually does so at a considerable height.

Although in most parts of Great Britain the Kestrel may be observed from time to time during the winter months, still it is a regular migratory species, and most of our British Kestrels leave us at the approach of winter to swell the large flocks of Hawks that annually cross the Mediterranean on passage. The reason for this migration has not far to be sought. Certainly in England the Kestrel's food is composed almost exclusively of mice and moles and beetles, creatures that are rarely found abroad in the depth of winter. The absence of this food renders migration imperative, and sends the Kestrel to a southern clime, where its winter fare is largely composed of locusts. Birds do not constitute the Kestrel's regular food. A walk through its haunts will convince the observer of this beyond all doubt. You never see the smaller birds in terror at his approach; he is no enemy of theirs, and mingles freely with them, almost unheeded. Observe what consternation the Sparrow-Hawk brings to these little choristers when he is abroad; but how different when the Kestrel passes overhead! The Chaffinch, instead of uttering cries of alarm, still continues his merry notes; and the Larks and Pipits stay not in their song. See how differently the Kestrel's presence in the farmyard is regarded. No anxious brooding hen utters her cluck of alarm to her scattered family; and the Sparrows continue their meal on the ricks, while in the air the graceful Swallow vies with him in airy flight, unconcerned and trustful, for experience tells him there is no danger.

Mice form the chief part of the Kestrel's food; but occasionally small birds are taken, although, as before stated, only very rarely and when its usual fare is wanting. Frogs, moles, caterpillars, lizards, and earthworms, too, are eaten; but the latter seem rather exceptional food; for the Kestrel is rarely seen on the ground, and there more rarely still in motion; for its sharp claws would inevitably be broken or blunted, and thus prevent it from firmly clutching its usual prey. All Falcons walk but little on the ground, as an examination of their beautifully sharpened claws proves beyond all doubt. A favourite prey of the Kestrel is cockchafers; and it may ofttimes in the evening's dusk be seen hawking for them, taking them in its claws just as it would take a mouse or frog. Various other insects are taken, such as grasshoppers and locusts. It usually eats its insect captures whilst flying through the air. From its extreme partiality for mice the Kestrel is one of the best friends of the farmer; and the great value of its services in destroying these pests ought to place it in far greater favour than it now enjoys.

It is not before the early spring (March) that the Kestrel is seen in any numbers in this country, when it returns northwards to rear its young. Even then, if the weather be at all severe, especially if the ground be covered with snow, they retire southwards again, to return as soon as the frost disappears. The Kestrel's pairing-season is in April, although the eggs are seldom laid before early May. Few things are more interesting than to wander through the Kestrel's haunt at this season and observe its graceful motions high in air. Around you in the underwood birds are singing on all sides; the air, with the balmy freshness only known in the vernal season, is resonant with melody; but high up in the air above you the Kestrels are sailing and chasing each other. Several are in the air together; and their flight is now graceful in the extreme—darting downwards, soaring aloft, and making the woods and rocks resound with their peculiar notes. It is their love-season, too; and at this period the Kestrel is more noisy than at any other time of the year. Their chorus of cries, high up in the blue sky, rendered musical by the distance—*keelie, keelie, kee-kee-kee*—is varied by a harsh chattering cry.

The Kestrel appears to delay its nesting-season until field-mice and insects are plentiful. The Kestrel generally breeds in the thickest woods, and rarely in nests built in isolated trees. It also rears its young on the cliffs by the sea-side; and some of the best places to seek for its eggs are the rocks on the moors and the cliffs of limestone districts. The Kestrel will also not unfrequently lay her eggs in holes of buildings, notably amongst ivied ruins and the Gothic architecture of cathedrals, in company with Doves and Jackdaws. When the eggs are laid in the crevices of rocks, a little cavity is, if possible, scratched in the soft earth or vegetable refuse, or, failing this, some natural cavity in the rock itself is chosen in which to deposit the eggs. I once took five Kestrel's eggs out of an old Raven's nest in the cleft of a perpendicular cliff at Howden Chest, in the High Peak of Derbyshire. It was an elaborate and highly finished structure, doubtless composed of the materials brought by the Ravens twenty years before, but evidently rebuilt for the occasion. It was almost flat; the centre was about 7 inches across, a slight hollow in a bed of peat, lined with bits of heath. Around this centre was a broad ring, 7 inches wide, very regularly and evenly made of the thick charred stalks of ling which had escaped the fire when the heath was burnt, now bleached white with age. It is very probable that the Kestrel is a life-paired bird, like other members of its order; and every season it will, if left unmolested, return to the same place to rear its young. Even if one of the birds be destroyed, the other will quickly find another mate, and return with unerring certainty to the home of its choice. In the wooded districts a Crow's or Magpie's nest is the usual situation chosen by the Kestrel in which to rear its young, and sometimes the nest of a Ring-Dove is used, and, more rarely still, an old Sparrow-Hawk's. It is also worthy of remark, that when a Magpie's nest is chosen the rooty lining is usually removed, probably from motives of cleanliness, and the eggs are laid on the hard lining of mud. As incubation advances the pellets containing the refuse of the bird's food accumulate, and serve as a lining, beautifully soft, on which the eggs rest secure.

Six eggs is the number usually found, although in some cases the number has been seven, and in others so few as four or five. They are rich reddish brown of various shades upon a dirty or creamy white ground.

Kestrels' eggs go through all the types of the eggs of the true Falcons figured on Plate 4; and, in addition to these, some eggs have the colouring-matter all massed on the larger end of the egg, others have a ground of dull yellowish chestnut with irregular blotches of intense coffee-brown, while others are brick-red with a few minute dots of deep brown. Most eggs of this bird, when newly laid, possess a purplish bloom, which, however, soon fades after exposure to the light. The eggs of the Kestrel vary from 1·7 to 1·45 inch in length, and from 1·35 to 1·12 inch in breadth. The female Kestrel when laying does not always deposit an egg each successive day, and sometimes sits upon the first egg as soon as laid. The female bird usually incubates the eggs, although the male is sometimes found upon them. When the nest is approached, the sitting bird silently quits its charge, but sometimes not until the nest is reached, especially if the eggs are coming near to maturity. Throughout the whole season of incubation the male bird may often be seen high in air above his nest, sailing round in circles; and sometimes he will be joined by his mate.

Although an easily-tamed bird when brought up from the nest, the Kestrel wins but little favour from the falconer, wanting, as it does, the impetuous dash of other members of this group of birds. Still it has been successfully flown at small birds, although the nature of its food in a wild state will effectually prevent it from ever figuring largely as a bird of sport.

The male Kestrel has the head, lower back, and tail slate-grey, the latter with a broad black band near the end and a white tip, and the head with dusky shaft-streaks; the rest of the upper parts pale chestnut, with small, black, triangular spots; the wings are blackish brown, with lighter-coloured edges; the breast and belly are pale fawn-colour, with dark streaks on the former and dark spots on the latter; the thighs and under tail-coverts are rufous fawn-colour without spots, and the under surface of the tail is greyish white. Beak blue; cere and orbits yellow; irides dark brown; legs and toes yellow; claws black. The female has the whole upper surface reddish brown, barred transversely with bluish black; the wings are darker than in the male, and the whole underparts are paler. Young males are like the female, but a little paler perhaps, until after the first winter, when they begin to assume the adult plumyage, the blue head being the last to be obtained. Very old females sometimes assume the plumage of the male.

FALCO CENCHRIS.

LESSER KESTREL.

(PLATE 4.)

Falco turrium, *Gerini, Orn. Meth. Dig.* i. p. 67, pl. lii. (1767).
Falco naumanni, *Fleischer, Sylvan*, 1817, p. 175.
Falco xanthonyx, *Natt. fide Fleischer, Sylvan*, 1817, p. 175.
Falco cenchris*, *Naum. Vög. Deutschl.* i. p. 318 (1820, *ex Frisch*); **et auctorum plurimorum**—*Cuvier*, (*Kaup*), *Schlegel*, (*Bonaparte*), (*Gray*), (*Newton*), *Dresser*, &c.
Falco tinnunculoides, *Schinz, fide Naum. Vög. Deutschl.* i. p. 323 (1820).
Falco tinnuncularius, *Vieill. Faun. Franç.* p. 36, pl. 16. fig. 3 (1829).
Cerchneis cenchris (*Naum.*), *Brehm, Vög. Deutschl.* p. 74 (1831).
Tinnunculus cenchris (*Naum.*), *Bp. Cat. Met. Ucc. Eur.* p. 21 (1842).
Tichornis cenchris (*Naum.*), *Kaup, Classif. Säug. u. Vög.* p. 108 (1844).
Pœcilornis cenchris (*Naum.*), *Kaup, Contr. Orn.* 1850, p. 53.
Cerchneis naumanni (*Fleischer*), *Sharpe, Cat. Birds Brit. Mus.* p. 435 (1874).

The claim of this species to be considered a British bird rests upon a single example which was shot in the neighbourhood of York by Mr. John Harrison, of Wilsthorpe Hall. There can be no doubt about the authenticity of this specimen, which was identified at the time by my friend the late Mr. Thomas Allis, of York, an excellent ornithologist. I have seen the specimen, which was stuffed by Mr. Graham, and is now in the York Museum. Mr. Harrison assures me that he has no doubt whatever that the bird in the museum is the one he shot. He is himself an ornithologist, and has a fine collection both of birds and eggs. His attention was first attracted to the bird by noticing it flying about on his farm very late in the autumn of 1869; and he shot it under the impression that it was a small and curious variety of the Common Kestrel. That this bird does occasionally wander north of its usual habitat is proved by its having been obtained on Heligoland.

Its breeding-range may be said to be the basin of the Mediterranean. It is very common in Southern Spain, and is said to breed in some parts of the Pyrenees. It is not uncommon in Sardinia and Sicily, but is very rare in Italy. In Greece it is extremely abundant, breeding as far north as South Bulgaria. In Russia it breeds only in the extreme south. It is very common in the Caucasus, Western Turkestan, Persia, Asia Minor, and Palestine. It is occasionally found in North France and North Germany; but these examples are rare stragglers out of the usual line of migration. It passes through the whole of North Africa, where a considerable number remain to breed. It winters in South Africa, having been found in Damara Land, the Transvaal, and the Cape. In the east it is represented by a very nearly allied species, *F. pekinensis*, which breeds in China and winters in India, where a few are said to remain in the mountains during the breeding-season.

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* *F. cenchris* is the name which has been applied to the Lesser Kestrel by an overwhelming majority of ornithologists; and Dresser still retains it in defiance of the law of priority, although in his synonymy he shows four older names. Sharpe, led away by the Stricklandian code, uses one of these old and deservedly forgotten names; and if the law of priority survives long enough, some ambitious ornithologist will be found rash enough to back Gerini's name against the field.

The Lesser Kestrel is a very gregarious bird, seldom found in isolated pairs. It is very partial to rocks and ruins; and I have seen them in great numbers flying in and out of the holes of the ruins of the Acropolis at Athens. In the villages of the Parnassus and in Asia Minor, for want of more suitable places, it breeds under the eaves of the houses; and I particularly remember a colony in a street in Missolonghi. Dr. Krüper says that he has found the nest in hollow trees; and I have frequently seen it perched in a tree. In and around the village of Menemen, not far from Smyrna, it was especially abundant, and we generally saw half a dozen on the wing together. We shot one out of three perched on the branches of an old olive-tree in the middle of the village; and once in the Parnassus we shot several birds which were flying about in the company of the Common Kestrel. The Lesser Kestrel is a migratory bird, arriving at its breeding-quarters about the middle of March. It breeds towards the end of April; and I found several nests late in June containing young birds. Some of these were under the eaves of the houses, and others in holes of the walls. The nests were extremely slight; and frequently the eggs were laid in a hollow scratched in the rubbish. Five seems to be the usual number of eggs; but I have clutches of four, and one of seven. The male bird appears to relieve the female in her duties, as on a nest which we took, containing five eggs, on the 15th of May in a village in the Parnassus, we caught the male and afterwards shot the female. The food of this bird during the breeding-season appears to be almost entirely composed of grasshoppers; and we often saw flocks or small parties flying up and down in the vicinity of their nests not at all disturbed by our watching them. We could see them thrust out their feet to catch the flying grasshoppers, and could notice them bring their feet to the bill, after which the hard parts of the grasshopper were distinctly seen to fall to the ground. They are very noisy on the wing; and their cry is very peculiar: Dr. Krüper pointed out to me its resemblance to the Greek word βεβαιως (pronounced *vev-ai′-ose*), which may be translated into American-English as "yes, certainly." Canon Tristram mentions their abundance near some of the villages in Palestine, pursuing insects, especially cockchafers, towards evening. He also mentions that he never found a colony of these birds without finding many of the Common Kestrel breeding in the same place. Saunders thinks these two species occasionally interbreed (see 'Ibis,' 1871, p. 59).

The eggs of the Lesser Kestrel are very round, almost globular, with but little difference between the larger and smaller ends. Their general ground-colour is pale brick-red, with dark brick-red spots, which are very generally diffused evenly over the whole surface, and very small, occasionally forming large blotches. Others, again, have an almost white ground-colour, with more than usually distinct spots and blotches, resembling very much a similar type of the Common Kestrel. In fact the eggs of the Lesser Kestrel go through the same varieties as the Common Kestrel, but are smaller and of a paler and more bricky red instead of blood-red. In size they vary from 1·45 to 1·3 inch in length, and from 1·2 to 1·03 inch in breadth.

The Lesser Kestrel resembles the Common Kestrel in colour very closely; but the males differ from our bird in being slightly smaller, in having no black spots on the back, and in having the innermost secondaries slate-grey instead of chestnut, and the claws white instead of black. The females are more difficult to determine; but the smaller size and pale claws of the Lesser Kestrel are the best characters.

The Chinese Lesser Kestrel is a doubtfully distinct species, and only differs from its western ally in having more slate-grey on the wing-coverts.

Genus PANDION.

The genus *Pandion* was established by Savigny (who separated it from the genus *Falco* of Linnæus) in 1810, in his 'Système des Oiseaux de l'Egypte et de la Syrie,' p. 9. The only species known to him was *P. haliaetus*, which must therefore be the type.

There is only one species of Osprey in the world; and this may be said to be almost cosmopolitan. The characters which distinguish it from all other allied birds of prey are the combination of the finely reticulated (not broadly scaled) tarsus, and the long first primary (much longer than the secondaries), with the absence of a forked tail and a notched bill. Its food is almost exclusively fish.

PANDION HALIAETUS.

OSPREY.

(Plate 3.)

Accipiter falco piscator caroliniensis, *Briss. Orn.* i. p. 362 (1760).
Aquila haliæetus, *Briss. Orn.* i. p. 440 (1760); **et auctorum plurimorum**—(*Linnæus*), (*Gray*), (*Schlegel*), (*Gould*), (*Newton*), (*Sharpe*), &c.
Falco haliætus, *Linn. Syst. Nat.* i. p. 129 (1766).
Falco arundinaceus, *Gmel. Syst. Nat.* i. p. 263 (1788).
Falco carolinensis, *Gmel. loc. cit.* (1788).
Falco cayennensis, *Gmel. loc. cit.* (1788).
Aquila piscatrix, *Vieill. Ois. Am. Sept.* i. p. 29, pl. 4 (1807).
Pandion fluvialis, *Savign. Syst. Ois. de l'Egypte*, p. 36 (1810).
Aquila haliaetus (*Briss.*), *Wolf, Taschenb.* i. p. 23 (1810).
Triorches fluvialis (*Sav.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 10 (1816).
Aquila balbusardus, *Dumont, Dict. Sci. Nat.* i. p. 351 (1816).
Pandion americanus, *Vieill. & Aud. Gal. Ois.* p. 33, pl. 11 (1825).
Accipiter haliaetus (*Briss.*), *Pall. Zoogr. Rosso-As.* i. p. 355 (1826).
Balbusardus haliaetus (*Briss.*), *Flem. Brit. An.* p. 51 (1828).
Pandion haliaetus (*Briss.*), *Less. Man. d'Orn.* i. p. 86 (1828).
Pandion carolinensis, *Aud. B. N. Amer.* pl. 81 (1831).
Pandion leucocephalus, *Gould, P. Z. S.* 1837, p. 138.
Pandion indicus, *Hodgs. Gray's Zool. Miscel.* p. 81 (1844).
Pandion ichthyaëtus, *Kaup, Classif. Säugeth. u. Vög.* p. 122 (1844, *nec Horsf.*).
Pandion gouldi, *Kaup, Isis*, 1847, p. 270.
Pandion haliaetus (*Briss.*), var. carolinensis, *Aud. Ridg. Proc. A. N. Sc.* 1870, p. 143.
Pandion fluviatilis (*Sav.*), *Severtz. Turk. Jevotnie*, p. 63 (1873).

The Osprey is one of the rarest raptorial birds in the British Islands. From the peculiar manner in which it takes its prey, and its great dexterity of movement, it has long been a favourite bird with the student of nature, and is indeed one of the finest, although fast expiring ornaments of the wild mountain-lochs, the bleak barren moors, and upland forests. The remote districts of Scotland, the wild solitudes of Highland loch and mountain, were once the favourite home of the Osprey; but now its numbers have greatly decreased, and only a few pairs resort to the central and northern districts of the Highlands for the purpose of rearing their young. The Osprey is seldom seen in the wild scenery of the Hebrides, but one or two specimens having been recorded from these islands. Although the waters there teem with fish, the scarcity of suitable cover and nesting-places most probably explains its absence. There are still one or two eyries in Inverness-shire and Ross-shire, and also in Galloway—a sufficient number of birds, if strictly preserved, to retain the Osprey in the rank of a regular migrant to our island. In the Orkneys, the Shetlands, and in Ireland the Osprey is only known as an extremely rare straggler, appearing at long and uncertain intervals. Its occurrence in England is usually confined to the period of the spring and autumn migrations. It has been obtained more or less frequently in almost every maritime county, and, more rarely, as far inland as Oxfordshire and Shropshire. Mr. Cordeaux informs me that "in the autumn of last year no less than nine occurrences of the Osprey were recorded from the east coast of England between the Tees and the Thames, from the last week in September through October—viz. 1 Durham, 1 Yorkshire, 3 Lincolnshire (2 immature, 1 adult female on the 15th of October), 2 Norfolk, and 2 near London."

The Osprey breeds throughout the Palæarctic and Nearctic Regions, nearly as far north as the limit of forest-growth. It is a migratory bird, leaving at least all the northerly parts of its range in autumn. It winters in South Europe and North Africa, where a few remain to breed in very favourable localities. It has once been recorded from Natal. In Asia it winters south of the Himalayas, occasionally straying as far as New Zealand and some of the Pacific islands. On the American continent it winters in Central America (where a few remain to breed) and the West Indies, occasionally wandering as far south as Brazil.

Messrs. Baird, Brewer, and Ridgeway attempt to separate the Ospreys of America and Australia as local races under the respective names of var. *carolinensis* and var. *leucocephalus*; but the characters given are so slight and so ill-defined that they are more likely to be individual than climatic.

Years ago, before the railway had joined the Highland solitudes with southern industry, before such attention was given to the preservation of game and the destruction of "vermin," the Osprey dwelt amongst the mountain-lochs, or on the brown heathlands studded thickly with stunted fir and birch trees. Now his haunts, which are only few and far between, appear to be the dense pine-forests that clothe the steep and rocky hill-sides, or away lower down the slopes in the broad stretches of bog-land, thinly sprinkled with timber, and overgrown with green and treacherous moss and rushes, amongst stagnant pools almost concealed by the luxuriance of dank and tangled masses of water-plants and coarse grass. Here and there in these situations, amongst the huge rocks and steep precipitous glens pierced by mountain-torrents and strewn with tempest relics of fallen pine and birch trees, the Osprey may sometimes be seen reposing or digesting his meal. Here, on these strictly preserved estates, the Osprey is a regular visitor in the summer months, and bids fair, with the aid of the protection now afforded it, to reinstate itself in the home of its ancestors. His haunt, however, by reason of the peculiar nature of his sustenance, must always be near the waters—either the large freshwater lakes, the wild mountain-waters teeming with trout, or the lochs and the seacoast where an abundant supply of food is ever obtainable.

Like most raptorial birds, the Osprey, when its meal is finished, takes its perch, usually on some post in the water or tree-stump on the bank, where it sits, seemingly unconscious of danger, to digest its meal, and where it is easily approached, its curious appearance and large size proving but allurements to its doom, which is duly recorded in the county paper. These birds, if they have the rare fortune to be left unmolested, will sometimes prolong their stay until the summer; but no instance is on record where the Osprey has been known to breed in England or Wales.

The habits of the Osprey, in certain respects, much resemble those of the Kestrel. Dixon describes a bird of this species which he saw searching for prey on the head waters of Loch Carron in Inverness-shire. "It was about thirty feet above the surface of the water, hovering with quivering wings, and ever and anon giving a few rapid beats, as if to steady itself. It slowly searched the shallow waters near the shore, hovering and sailing alternately, just like our well-known Windhover in the meadows. Finally it poised itself for a moment, and dropped down like a stone into the water, the noise of its plunge being distinctly audible more than a quarter of a mile away. Rising in a few seconds, it again for a short time hovered above the surface, and then finally retired, in slow Buzzard-like flight, towards a distant clump of timber, but whether successful in its exertions we are unable to say." "I have watched," says Booth, in his interesting 'Rough Notes,' when speaking on the habits of the Osprey on our English waters, "one or two, while searching for flounders in the muddy creeks on Breydon Water, following the course of the channels, and fishing in exactly the same manner that Gulls may be noticed when picking up the floating refuse in a tideway, the only difference being that a Gull seizes the food with his beak, while an Osprey grasps it in his claws. The thickness of the water renders it impossible for any fish to be detected at a depth below the surface; flounders, however, may frequently be seen working their way close to the edge of the stream; and from the manner in which the birds proceeded, I have not the slightest doubt they were in pursuit of this description of fish. After hovering round for a second or two, I have noticed one dip down close to the mudbank, and, although appearing scarcely to have touched the water, sail off to some quiet spot, where it could leisurely devour its prey, a favourite resting-place in that locality being the sweeps of an old mill standing within a short distance of the flats, from which a good view of approaching danger might be obtained. Mullet are very plentiful in the upper parts of Breydon Water; and to these the Osprey is stated to be particularly partial when observed in the south of England."

From the excessive rarity of the Osprey in our islands, British ornithologists have but little opportunity of adding much original matter to its life-history. But in North America the Osprey is one of the commonest of raptorial birds, consequently its habits have been studied closely. Wilson has thus graphically portrayed the habits of this bird:—"The flight of the Fish-Hawk, his manœuvres while in search of fish, and his manner of seizing his prey are deserving of particular notice. In leaving the nest he usually flies direct till he comes to the sea, then sails around in easy curving lines, turning sometimes in the air as on a pivot, apparently without the least exertion, rarely moving the wings, his legs extended in a straight line behind, and his remarkable length and curvature or bend of wing distinguishing him from all other Hawks. The height at which he thus elegantly glides is various, from one hundred to one hundred and fifty and two hundred feet, sometimes much higher, all the while calmly reconnoitring the face of the deep below. Suddenly he is seen to check his course, as if struck by a particular object, which he seems to survey for a few moments with such steadiness that he appears fixed in air, flapping his wings. This object, however, he abandons, or rather the fish he had in his eye has disappeared, and he is again seen sailing around as before. Now his attention is again arrested, and he descends with great rapidity; but ere he reaches the surface shoots off on another course, as if ashamed that a second victim had escaped him. He now sails at a short height above the surface, and by a zigzag descent, and without seeming to dip his feet in the water, seizes a fish, which, after carrying a short distance, he probably drops, or yields up to the Bald Eagle, and again ascends by easy spiral circles to higher regions of the air, where he glides about in all the ease and majesty of his species."

Whether the Osprey is a partially nocturnal bird it is difficult to determine; but Mr. Booth mentions the fact that he has repeatedly heard this bird calling in the darkness when in the neighbourhood of its nest. Its note is neither loud nor harsh; nor is the bird by any means a noisy one. It resembles the syllables *kai, kai, kai*; and its alarm-note consists of a harsh but not loud scream.

An examination of some of the most prominent organs of the Osprey shows how fitted it is to its peculiar conditions of life. Fishes form the Osprey's only food, which it clutches from their native element when swimming on or near the surface. Its long and powerful wings enable it to fly great distances and remain in the air for long periods of time in search of its finny prey. Its plumage is unusually dense on the lower parts, as a protection against its repeated immersions in the water; and the long feathers adorning the tibiæ of the land Raptores are in the Osprey replaced by short ones. From the peculiar form of its finny prey, the slippery nature of its outer surface, and its great facility of evading the bird's attack, the Osprey's feet exhibit certain well-marked peculiarities. The outer toe is reversible, the claws are remarkably curved and sharp, and the soles of the feet are very rough, all assisting the bird to grasp its food with great certainty and precision. From their peculiar structure the claws of the Osprey do not tear the tender flesh of its prey, nor are they easily withdrawn when once they are inserted—a circumstance which has not unfrequently been known to cost the bird its life, by fastening to a fish too large for it to lift from the water. The food of the Osprey is composed of various kinds of fish. When its habitation is near the fresh waters, trout, salmon, roach, carp, pike, bream, rudd, &c. are eaten, the first-named fish (the brown or lake-trout) in Scotland forming its favourite food. In maritime districts the Osprey feeds on shad, flounders, &c., and has been known to strike at large sturgeon. The fish when seized is always carried lengthwise in its talons—a position consequent upon the easiest way of approaching and taking it, not, it is probable, because it would at all impede the bird's flight if carried crosswise; for, once the claws are inserted in the fish, there they remain until it is eaten or torn in pieces.

Like raptorial birds in general, the Osprey pairs for life and returns yearly to its old breeding-grounds. When the Osprey was a common bird in Scotland it almost invariably chose some rocky islet in the mountain-lochs, or built its bulky citadel on some commanding battlement or chimney-stack of an old ruin surrounded by the waters. These nests were so regularly tenanted that quite a historical interest attached to them; and even now of late years, when the Osprey is almost only known as a tradition, the situations of its former eyries are pointed out as objects of no small amount of interest. In many parts of the world, however, the Osprey builds in trees; and in America, where it is such an abundant species, it occasionally breeds in colonies. This habit of arboreal nest-building appears to be followed by the British birds; and what few eyries do now exist at the present day in Scotland are for the most part in pine trees.

There are few scenes more wildly picturesque than an Osprey's eyrie, nor so well worth a visit, a sight of its wild surroundings and grand solitude amply recompensing the observer for the usually hard and wearisome tramp over hill and bog ere he can reach it. Should it be on some old ruinous keep or dungeon, water-surrounded and safe from enemies, far among mountain-solitudes, or in the silent deer-forest, on the tree-clad slopes sweeping so grandly away into dreamy indistinctness, surrounded by almost impregnable morasses and rocky glens, in all its interest is the same. Wherever the bird builds its castle the locality gains an untold interest, receives a sense of *life* and animation. From the great weight and bulkiness of the Osprey's nest, and from the fact that the same situation is resorted to for many years in succession, the branches which support it are not unfrequently distorted in growth and flattened. In other cases the Osprey has several favourite eyries in one chosen locality, and appears to utilize them in turn, like the White-tailed Eagle or the Peregrine. As a rule the largest tree in the forest, the patriarch of the timber, is selected to hold the nest, which is built at varying heights from the ground, sometimes on the topmost branches, flattened by its weight, more rarely at a distance of ten or fifteen feet from the ground, on one of the broad spreading limbs. But when the Osprey's nest is on ruins it is often at a far greater elevation; and when built on rocky islets it is not unfrequently but a few feet from the ground, built amongst the grey lichens and tufts of polypody fern. Although the Osprey is in most places such a very rare bird, a journey of thirty-six hours from London will bring us to a locality where it is found in very great numbers. On the southern shores of the Baltic, north of Stettien, surrounding the inland lakes which form the delta of the Oder, are vast forests which form a perfect paradise for the Osprey. Lonely forests within easy access of freshwater lakes are the favourite breeding-places of this bird. He generally selects the loftiest tree in the forest, his main object being apparently to be able to rise at once from the nest without being incommoded by the branches of trees; thus it often happens that the nest is visible at the distance of a mile. The structure is enormously large, from three to four feet in diameter, and occasionally as high, and is generally placed upon the summit of a pine tree, one having a dead top being preferred. At the outside it extends so far over the branches that it is often very difficult to reach. The foundation is made of branches intermixed with decaying vegetable matter and sods; the upper surface is flat, and consists of finer twigs covered over with green and dry grass, the eggs being laid in a slight hollow in the middle, not more than a foot across, and scarcely two inches deep. Three eggs are the usual number, occasionally two, and still more rarely four. The most favourite place of all is on an island covered over with timber in the middle of a lake on which there are no boats. In a locality of this kind in Pomerania a number of Ospreys formed a colony, in one case two nests being on the same tree; and the Osprey has been known to build upon the top of a tree in which was the nest of a Black Stork. The Osprey is a shy bird at the nest, and usually leaves it at once on the approach of a stranger. The birds are in the habit of roosting on the nest before any eggs are laid.

By the latter end of April or the first week in May the Osprey's eggs are deposited. They vary considerably in colour. Typical specimens are white or yellowish white in ground-colour, irregularly and very boldly blotched and spotted with rich reddish brown, which becomes more dense and thickly dispersed over the larger end, sometimes so much as to hide all the ground-colour. Some examples are quite purple; others are entirely suffused with orange-red; whilst a very beautiful variety has all the vacant spaces between the bold brown markings blurred and dashed with violet-grey shell-markings. Other specimens have a large blot of colour here and there over the entire surface, or have the colouring-matter in a zone or belt round the middle of the shell. Many examples are marked with smaller spots and streaks of colour, and marbled over the entire surface with violet-grey and faint orange-red. The eggs of the Osprey are rarely faintly or sparingly marked, and justly claim to rank as some of the handsomest in all the British series. In form they are not so round as the true Falcon's, and are also far more elongated than the typical Eagle's, and are somewhat coarse in texture. They vary in length from 2·5 to 2·15 inch, and in breadth from 1·95 to 1·75 inch. They are usually hatched by the end of May or early in June. Like many other birds of prey, the female Osprey is not easily scared from the nest. During the period of incubation the male bird keeps close to the vicinity of the nest, and supplies the female with food; she has therefore but little cause to leave her charge, and only does so for very short intervals. The young are fed by both parents until they are fully able to provide for themselves; and even when they are able to leave the nest they keep in their parents' company for some little time, the old birds still supplying them with food. When they are strong upon the wing they will still haunt the place of their birth, probably till the migratory period arrives, and roost at night upon the old nest. But one brood is reared in the season.

The plumage of the head and nape is white, broadly streaked with brown, some of the feathers being elongated. The whole upper plumage is dark brown, sometimes with a purplish tinge; the underparts are white, except a light brown band across the upper breast. Legs, toes, and cere blue; beak and claws black; irides yellow. The female resembles the male, but is slightly larger, and the head and breast are more marked with brown. Young birds resemble the adult female in autumn plumage, the males not assuming mature dress until the third or fourth year. The nestling bird is covered with blackish down. The Osprey completes its annual moult in December; and then the feathers are more deeply coloured, have broad light-brown margins, and the upper parts display a purplish gloss. By the following spring, however, much of this disappears, and the feathers lose their pale margins.

Genus ELANOIDES.

The genus *Elanoides* was established by Vieillot in 1818, in his 'Nouveau Dictionnaire d'Histoire Naturelle,' xxiv. p. 101, when he removed the Swallow-tailed Kite from the genus *Milvus* in which he had first placed it. The latter genus was separated from the genus *Falco* (in which Linnæus included the Swallow-tailed Kite) by Cuvier in 1800. The only species then known to Vieillot was *E. furcatus*, which must therefore be the type.

This genus contains only one species, which is confined to the American continent, and only accidentally strays as far as Europe. It has no very near relations, but is distantly allied to the genus *Nauclerus*. It may always be distinguished by its long narrow wings and the deep fork in the tail, which resembles that of the Barn-Swallow.

ELANOIDES FURCATUS.

SWALLOW-TAILED KITE.

(PLATE 6.)

Accipiter milvus caroliniensis, *Briss. Orn.* i. p. 418 (1760),
Falco furcatus, *Linn. Syst. Nat.* i. p. 129 (1766); **et auctorum plurimorum**—*Wilson*, (*Audubon*), (*Gould*), (*Bonaparte*), &c.
Milvus furcatus (*Linn.*), *Vieill. Ois. Amér. Sept.* p. 38, pl. 10 (1807).
Elanoides furcatus (*Linn.*), *Bonn. et Vieill. Enc. Méth.* iii. p. 1204 (1823).
Elanoides yetapa, *Bonn. et Vieill. tom. cit.* p. 1205 (1823).
Elanus furcatus (*Linn.*), *Vig. Zool. Journ.* i. p. 340 (1824).
Nauclerus furcatus (*Linn.*), *Vig. Zool. Journ.* ii. p. 387 (1825).
Falco yetapa (*Bonn. et Vieill.*), *Max. Beitr. Orn. Bras.* iii. Abth. i. p. 141 (1830).
Nauclerus forficatus (*Linn.*), *Ridgway, Pr. Phil. Acad.* 1870, p. 144.

This singularly handsome bird appears to have once or twice wandered as far as our islands, but is not known ever to have visited any other part of Europe. Its claim to rank as a British bird rests upon the undoubted capture of two specimens. The first of these examples was at Ballachulish, in Argylshire, in the year 1772, and recorded by the late Dr. Walker, of the University of Edinburgh, in his manuscript journal for that year. The first published account of this capture was made by Fleming, in his 'History of British Animals.' The precise circumstances under which it was taken, however, are not known. The occurrence of the second specimen was recorded in the fourteenth volume of the 'Transactions of the Linnean Society,' under date November 4, 1823, by Dr. Simmons, on the authority of the late Mr. Fothergill, of Carr End, near Arkrigg, in Yorkshire. It was captured alive at Hardraw Scarr, near Hawes in Yorkshire. Newton, in his edition of Yarrell's 'British Birds,' further corroborates the statement by publishing the original note of the bird's capture, supplied to him by the son of the last-named gentleman, Mr. William Fothergill, of Darlington. This note states that "on the 6th of September, 1805, during a tremendous thunderstorm, a bird, of which a correct description follows, was observed flying about in Shaw Gill, near Simonstone, and, alighting on a tree, was knocked down by a stick thrown at it, which, however, did not prove fatal, as I saw it alive, and had an opportunity of carefully examining it four days after it was taken. The bird was kept to the 27th, and then made its escape, by the door of the room being left open while showing [it] to some company. At first it arose high in the air; but being violently attacked by a party of Rooks, it alighted in the tree in which it was first taken. When its keeper approached it took a lofty flight towards the south, as far as the eye could follow, and has not since been heard of."

Other specimens of the Swallow-tailed Kite have been said to have been killed in England and Ireland, but on evidence that is too unsatisfactory to be taken as conclusive (*cf.* Zool. 1854, pp. 4166, 4366, 4406, and Zool. 1856, p. 5042). A fourth specimen is also said to have been obtained on the Mersey, in June 1843.

The Swallow-tailed Kite is a summer migrant to the Southern S tats of North America east of the Rocky Mountains, its breeding-range extending somewhat further north, in the valley of the Mississippi, into Southern Wisconsin. It winters in the West Indies and in Central America, where a few remain to breed in the mountains, wandering southwards into the northern and central portions of South America.

The Swallow-tailed Kite is said to return to its breeding-grounds in the beginning of April, and breeds later than the other birds of prey. According to Audubon, "in the States of Louisiana and Mississippi, where these birds are abundant, they arrive in large companies, in the beginning of April, and are heard uttering a sharp plaintive note. At this period I generally remarked that they came from the westward, and have counted upwards of a hundred in the space of an hour passing over me in a direct easterly course. At that season and in the beginning of September, when they all retire from the United States, they are easily approached when they have alighted, being then apparently fatigued, and busily engaged in preparing themselves for continuing their journey."

"Marked among its kind by no ordinary beauty of form and brilliancy of colour, the Kite," writes Dr. Coues in his 'Birds of the North West,' "courses through the air with a grace and buoyancy it would be vain to rival. By a stroke of the thin-bladed wings and a lashing of the cleft tail, its flight is swayed to this or that side in a moment, or instantly arrested. Now it swoops with incredible swiftness, seizes without a pause, and bears its struggling captive aloft, feeding from its talons as it flies; now it mounts in airy circles till it is a speck in the blue ether, and disappears. All its actions, in wantonness or in severity of the chase, display the dash of the athletic bird, which, if lacking the brute strength and brutal ferocity of some, becomes their peer in prowess—like the trained gymnast, whose tight-strung thews, supple joints, and swelling muscles, under marvellous control, enable him to execute feats that to the more massive or not so well-conditioned frame would be impossible. One cannot watch the flight of the Kite without comparing it with the thorough-bred racer. The Swallow-tailed Kite is a marked feature of the scene in the Southern States, alike where the sunbeams are redolent of the orange and magnolia, and where the air reeks with the pestilent miasm of moss-shrouded swamps that sleep in perpetual gloom."

According to Audubon, "the flight of this elegant species of Hawk is singularly beautiful and protracted. It moves through the air with such ease and grace that it is impossible for any individual who takes the least pleasure in observing the manners of birds not to be delighted by the sight of it whilst on wing. Gliding along in easy flappings, it rises in wide circles to an immense height, inclining in various ways its deeply-forked tail to assist the direction of its course, dives with the rapidity of lightning, and suddenly checking itself reascends, soars away, and is soon out of sight. At other times a flock of these birds, amounting to fifteen or twenty individuals, is seen hovering around the trees. They dive in rapid succession amongst the branches, glancing along the trunks, and seizing in their course the insects and small lizards of which they are in quest. They always feed on the wing. In calm and warm weather they soar to an immense height, pursuing the large insects called *Musquito-Hawks*, and performing the most singular evolutions that can be conceived, using their tail with an elegance of motion peculiar to themselves. Their principal food, however, is large grasshoppers, grass-caterpillars, small snakes, lizards, and frogs. They sweep close over the fields, sometimes seeming to alight for a moment to secure a snake, and holding it fast by the neck, carry it off and devour it in the air. When searching for grasshoppers and caterpillars, it is not difficult to approach them under cover of a fence or tree. When one is then killed and falls to the ground, the whole flock comes over the dead bird, as if intent upon carrying it off. The Fork-tailed Hawks are also very fond of frequenting the creeks, which in that country [States of Louisiana and Mississippi] are much encumbered with drifted logs and accumulations of sand, in order to pick up some of the numerous water-snakes which lie basking in the sun. At other times they dash along the trunks of trees and snap off the pupæ of the locust or that insect itself. Although when on wing they move with a grace and ease which it is impossible to describe, yet on the ground they are scarcely able to walk."

Dresser, writing on the habits of this bird in Texas (Ibis, 1865, p. 325), says :—" On the Colorado, Brazos, and Trinity rivers it is one of the commonest birds, and every child knows it under the names of Scissor-tailed, Forky-tailed, and Fish-tailed Hawk, or Fish-Hawk. It only remains during the summer months, arriving early in April. . . . I watched one very closely as it was hunting after grasshoppers on a piece of prairie near Brenham. It went over the ground as carefully as a well-trained pointer, every now and then stooping to pick up a grasshopper; and, to me, the feet and bill appeared to touch the insect simultaneously. They seem very fond of wasp-grubs, and will carry a nest up to some high perch and sit there, holding it in one claw, and picking out the grubs. I once saw one drop a nest and catch it before it reached the ground. I examined the stomachs of all I shot (some ten or twelve), and found them to contain sometimes beetles, sometimes grasshoppers." A very interesting note on the Swallow-tailed Kite's partiality for bees in Guatemala is recorded by Mr. R. Owen, in 'The Ibis' for 1860, p. 241:—"Proceeding on our journey, and passing over the brow of a hill which rose considerably above those surrounding us, we suddenly saw, on the slope beneath us, a large number of Swallow-tailed Kites, gliding backwards and forwards through the air, directly over the road which we were pursuing. They were near the ground, many of them within ten or twelve yards of it, and numbered from 150 to twice that quantity. They were closely packed, not one straggling for a moment from the rest, and reminded one of our English Swifts as they congregate in flight round an old and lofty edifice. My companion was surprised, no less than myself, to find so many of these birds in company; for, according to the experience of the Coban hunters, they generally go in pairs, although three or four may be occasionally met with together. A few yards of precipitous descent brought us immediately under the birds, and into a swarm of bees upon which they were feeding. The swarm was slowly skirting the hill in compact order, its persecutors sweeping through and through it, with wings extended, and their scissor-like tails widely opened . . . . At times birds would pass within four or five yards of us, giving us time to observe their movements accurately. Every now and then the neck would be bent slowly and gracefully, bringing the head quite under the body, the beak continuing closed; at the same time the foot, with the talons contracted as if holding an object in its grasp, would be brought forward until it met the beak. This position was only sustained a moment, during which the beak was seen to open; the head was then, with closed beak, raised again, and the foot thrown back. . . . The bees, so far as I could observe (for I could not catch one for examination), were about the size of our English hive-bee, but of a brilliant colour, between red and yellow."

Although the Swallow-tailed Kite is so abundant in certain localities, but little information has been published respecting its nidification. Audubon mentions that it pairs immediately on its arrival in its summer haunts, and that its courtship takes place in the air, where its fine powers of wing are displayed to even still greater perfection than usual. The same accomplished naturalist also states that the nest is usually placed amongst the topmost branches of the tallest trees, usually on the margin of a stream or pond, and that it resembles that of a Crow, being made of sticks intermixed with "Spanish moss," and lined with coarse grasses and feathers, and that the eggs are from four to six in number. Dresser, in the article previously referred to, on the birds of Southern Texas, mentions that he found the Swallow-tailed Kites very numerous on a creek near the

Rio Colorado, on the 26th of May, but, on shooting and dissecting them, found that they had not at that date commenced breeding. Preparations for nidification were, however, in progress; and from what he observed of their habits, he suggests that they may possibly breed in society—a fact not at all unlikely when we bear in mind the gregarious habits of the bird. He was told that the birds in Texas built high up in the oak, sycamore, or cotton-wood trees. He did not at that time succeed in obtaining eggs, but has since received them through Mr. Henry Buckley, and most kindly lent them for use in the present work—probably the first authentic specimens of the eggs of this bird which have been figured. Two specimens taken in Iowa differ considerably: the first is decidedly an Osprey type of egg; the second is very pale bluish white, irregularly and sparingly marked with minute specks and one or two larger spots of rich reddish brown; the shell resembles that of a Harrier in grain, and possesses no gloss whatever. They vary from 1·9 to 1·95 inch in length, and from 1·5 to 1·47 inch in breadth. Mr. Buckley's correspondent asserts that the eggs are usually two in number—a statement at variance with Audubon's.

The colours of this very handsome bird are in bold contrast and decided. The head and neck all round, the rump, and the whole of the underparts are white, the remainder of the plumage being black with blue and purple reflections. Cere pale blue; irides red (but Audubon describes them as black); feet dirty bluish white according to Audubon, but yellow according to Wilson; claws white or flesh-coloured. Male and female do not differ in external characters, save that the latter bird is more robust and slightly larger.

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Genus PERNIS.

The genus *Pernis* was established by Cuvier in 1817 in his 'Règne Animal,' i. p. 322, for the reception of the Honey-Buzzard, which he removed from his genus *Buteo,* in which Vieillot had erroneously placed it. As the Honey-Buzzard was the only species of the genus known to Cuvier, it became unquestionably the type.

There is only one European species of this genus, which may at once be distinguished from any other European bird of prey by its feathered lores. The genus is confined to the Old World. Besides the European bird, two other very nearly allied species are known, inhabiting some of the islands of the Malay archipelago, and two more distantly related—one inhabiting New Guinea, and the other South Africa.

PERNIS APIVORUS.

HONEY-BUZZARD.

(Plate 3.)

Accipiter buteo apivorus, *Briss. Orn.* i. p. 410 (1760).
Falco apivorus, *Linn. Syst. Nat.* i. p. 130 (1766); **et auctorum plurimorum**— (*Naumann*), (*Temminck*), (*Cuvier*), (*Bonaparte*), (*Sharpe*), &c.
Falco tachardus, *Daud. Traité d'Orn.* ii. p. 164 (1800, *ex Lev.*).
Falco poliorynchos, *Bechst. Orn. Taschenb.* i. p. 19, pls. 3, 4, 5 (1802).
Buteo tachardus (*Daud.*), *Vieill. N. Dict. d'Hist. Nat.* iv. p. 479 (1816).
Buteo apivorus (*Linn.*), *Vieill. N. Dict. d'Hist. Nat.* iv. p. 479 (1816).
Aquila variabilis, *Koch, Syst. baier. Zool.* p. 115 (1816).
Pernis apivorus (*Linn.*), *Cuv. Règne An.* i. p. 323 (1817).
Accipiter lacertarius, *Pall. Zoogr. Rosso-As.* i. p. 359 (1826).
Pernis communis, *Less. Traité d'Orn.* p. 75 (1831).
Pernis apium, *Brehm, Vög. Deutschl.* p. 46 (1831).
Pernis vesparum, *Brehm, Vög. Deutschl.* p. 47 (1831).
Pernis tachardus (*Daud.*), *Gray, Hand-l. B.* i. p. 26 (1869).

The Honey-Buzzard was formerly a regular summer visitant to this country, breeding in most of the counties of England and Wales, where the woods were large enough to afford it a secure retreat for its nest. In Scotland and in Ireland the information we have is very meagre; but it appears to have formerly bred in both these countries, where it has now, as well as in England, become a rare summer visitor. It is also occasionally seen on the autumn migration. It is a great pity that such an extremely handsome and entirely harmless bird should be on the verge of extermination in our country. In addition to the persecutions of the gamekeepers, who have not yet learnt to distinguish between useful and harmful birds of prey, it is much sought after by collectors, both for its skin and for its remarkably handsome eggs. In spite, however, of all its enemies, it still yearly breeds in the New Forest and some other parts of England and Scotland.

On the continent the Honey-Buzzard, though nowhere very common, breeds in some numbers north of latitude 45° up to the Arctic Circle. Its occurrence further north rests upon very insufficient evidence. It appears to be a very local bird; but it breeds regularly in well-wooded districts in the north of France, Belgium, Holland, Germany, Austria, Denmark, S. Norway and Sweden, and Russia. Eastwards its breeding-range appears to be comparatively little known. Pallas records it from Southern Siberia; and my Siberian collector has sent me a skin from Krasnoyarsk. Taczanowski records an example without a crest from Lake Baikal; two examples from Japan are mentioned by Temminck and Schlegel as undistinguishable from

European birds; and Père David obtained it in North China. On migration it passes through Spain, Italy, Turkey, Greece, the whole of North Africa, and Turkestan. It winters in West Africa, occasionally wandering as far as South Africa; and in the British Museum is a specimen from Madagascar. In the Oriental Region a very closely allied form (*P. ptilorhynchus*) occurs, differing principally in having a conspicuous crest. In Java these crests appear to attain their greatest development, measuring 3·7 inch in length. In Sumatra the longest measurement of the crest given is 2·3, and in Malacca 2·0 inch; in India none have been recorded with the crest longer than 1·9, whilst in Tenasserim Hume and Davison say that the crests are only incipient. Some ornithologists have referred the Siberian, Japanese, and Chinese birds to this species; but, until examples with crests have been obtained from these localities, we can scarcely accept this determination. A more rational explanation of these curious facts appears to me to be that our Honey-Buzzard ranges as far east as Japan, and that the Eastern birds winter in India and the Siamese peninsula, occasionally remain there, and interbreed with the southern species *P. ptilorhynchus*, thus producing the intermediate forms.

Although the Honey-Buzzard is a tolerably common bird in the neighbourhood of Archangel, still it is one that arrives at its breeding-quarters very late. This late arrival is probably caused, not from the bird's susceptibility to cold, but from the late appearance of those insects on which it principally feeds. From the middle of April to the middle of May it passes Gibraltar, Malta, and the Bosphorus in large flocks, returning on its southern passage in September and October, in smaller parties. Although the Honey-Buzzard is not a shy bird, still it is one that is very seldom seen. As a rule it does not seek its food upon the wing. During my visit to Brunswick and Pomerania, although the bird had certainly arrived, and in the latter country had begun to breed, we only once obtained a sight of it, sailing over a forest somewhat in the manner of a Buzzard. In the late summer months its principal food is wasps and their larvæ; and it will spend hours on some obscure bank on the outskirts of the forest scratching down to the nest and picking the grubs out of the comb. Besides wasps and bees and their larvæ, the Honey-Buzzard feeds upon grasshoppers and other insects, and eats frogs, lizards, and mice, and occasionally earthworms and small birds. Sachse says that this bird, besides the nest in which it lays its eggs, frequently makes use of some old nest in the neighbourhood, to which it retires to eat its food; and he suggests that these nests may also be used as a sort of storehouse, as he has found in them half-eaten birds, mice, &c. It is almost as much mobbed by small birds as the Cuckoo is, partly in consequence of which it has obtained the reputation of robbing their nests—a reputation which it occasionally deserves. In autumn, when short of food, it is said to eat berries and small fruits.

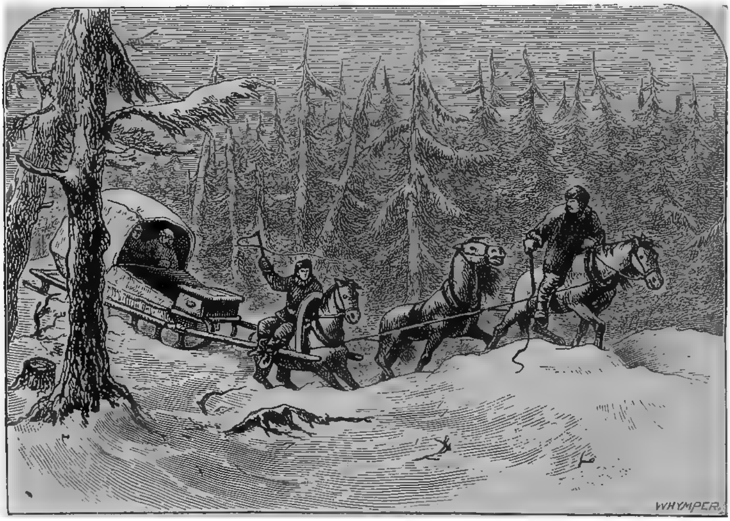
The Honey-Buzzard is a comparatirely silent bird; but its alarm-note at the nest resembles that of the Peregrine Falcon, though not so loud.

In Pomerania the Honey-Buzzard does not build a nest of its own, but selects one of the numerous Buzzards' or Kites' nests which abound in the forest, relining them with a profusion of fresh green leaves or the ends of branches of trees in full leaf. This lining is apparently renewed from time to time. A preference appears to be given to beech-leaves; but a nest which was taken for me on the 11th of June last was redecked round the edge with green pine and birch twigs, with a final lining under the eggs of beech-leaves. The nest was in a beech tree about 25 feet from the ground, and had been occupied the year preceding by a Buzzard. The bird sat very close, and did not leave the nest until the climber threw a stick at it. It then suddenly jumped up, took wing, wheeled round once or twice, but soon settled on a branch near the nest, and looked down to see the cause of the alarm. The nest contained two eggs. The climber took me to see the old Buzzard's nest in a beech-tree about 45 feet from the ground, in which probably the same pair of birds had bred the previous year. Two seems to be the usual number of eggs; but Sachse says that he once took a nest of three; and Mr. Benzon, the well-known ornithologist in Copenhagen, states that he has known four eggs to be laid. Sachse says that an interval occurs of a week between the laying of the first egg and the second. Incubation lasts three weeks; and both sexes take their share of its duties.

The eggs of the Honey-Buzzard are very glossy or waxy in appearance, and are very round, the small end being but slightly different from the large end. They run through the same variations as the eggs of the Common Kestrel or the Peregrine. The ground-colour varies from cream-colour to pale brick-red, and the spots from brick-red to deep rich purple blood-red. In some examples the ground-colour is entirely obscured; in others the blotches are almost confluent at one end of the egg; whilst in others they are more evenly distributed over the surface, or show signs of having been scratched or rubbed off when the colouring-matter was wet. It is usual to find in the same clutch an almost uniformly marked egg, and one with the markings dispersed in irregular blotches. In size they vary from 2·05 to 1·86 inch in length, and from 1·7 to 1·55 inch in breadth.

In general appearance the Honey-Buzzard very much resembles the Common Buzzard, but may at once be distinguished by the scales on the tarsus, which are finely reticulated all round instead of being in broad plates at the front and the back. Another equally important distinction may be found in the lores, which are finely feathered down to the cere instead of being only covered with bristles. There appear to be two forms of the Honey-Buzzard, a dark one and a light one. The adult male of both forms has an ash-grey head and the rest of the upper parts uniform brown; and the underparts of the dark form are also uniform brown. The underparts of the light form are nearly white, intermediate forms being barred and spotted. The female of neither form has the grey head, that of the dark form otherwise resembling the male, and that of the light form otherwise resembling a male intermediate form. Adult birds have always three conspicuous nearly black bars on the tail, which is brown; and between these are rudiments of pale bars in both sexes, at all ages, and in both forms. In young birds the feathers of the upper parts have pale edges, with the under surface streaked instead of barred in the light form, and uniform in the dark form. According to the opinions of the best authorities on the subject, there is no important intermediate stage between the young and the adult. The beak is black; legs and toes yellow, claws black; irides yellow in the adult, but hazel in the young. It is not known that the two forms of this bird have in any way different geographical areas of distribution; but far too little attention has been paid to this subject by the ornithologist, who, for the most part, has ignored the existence of local forms—

A Honey-Buzzard, stout or slim,
A Honey-Buzzard is to him,
And it is nothing more.



Genus MILVUS.

The genus *Milvus* was established by Cuvier in 1800, in his 'Leçons d'Anatomie Comparée,' i. tabl. 2. Previous to that date the Kites were included in the genus *Falco* of Linnæus. Cuvier did not designate any type; but inasmuch as the *Falco milvus* of Linnæus is the Common Kite, it has the greatest claim to be considered the type.

The Kites differ from all the genera previously mentioned in having the lower half of the front of the tarsus furnished with broad plates, contrasting with the fine reticulations on the sides and back. From all the genera hereafter described they differ in combining a long tail with a short tarsus, the former being more than four times the length of the latter.

The true Kites are confined to the Old World, but have distant relations in the New. Two species are in the British list, though one of them is only admitted by courtesy. Besides these the genus contains no species except the local races of the Black Kite which are mentioned in the article on that bird. The Kites resemble the Eagles and the Buzzards very closely in their habits, and are very nearly allied to the Sea-Eagles. Like them they build in trees and sometimes in cliffs, but they have the peculiarity of preferring wool, rags, and paper as a lining to the nest. Their eggs are often scarcely distinguishable from those of the Buzzard nor is there much difference in their mode of flight or in their choice of food.

MILVUS REGALIS.

COMMON KITE.

(Plate 5.)

Accipiter milvus regalis, *Briss. Orn.* i. p. 414, pl. 33 (1760).
Falco milvus, *Linn. Syst. Nat.* i. p. 126 (1766).
Milvus castaneus, *Daud. Traité*, ii. p. 148 (1800).
Milvus ictinus*, *Sav. Syst. Ois. d'Egypte*, p. 28 (1810).
Milvus regalis (*Briss.*), *Vieill. Faun. Franç.* p. 14 (1821).
Accipiter regalis (*Briss.*), *Pall. Zoogr. Rosso-As.* i. p. 358 (1826); **et auctorum plurimorum**—(*Macgillivray*), (*Gray*), (*Bonaparte*), (*Schlegel*), (*Strickland*), (*Sundevall*), (*Degland et Gerbe*), (*Gould*), (*Heuglin*), (*Salvadori*), (*Gray*), &c.
Milvus vulgaris, *Flem. Brit. An.* p. 51 (1828).

A hundred years ago the Kite was one of the commonest birds of prey to be seen in Great Britain, but now it has become almost as rare as the Osprey or the Goshawk. All the old writers who have treated of the natural history of our islands have made reference to the wide distribution and abundance of the Kite. Even in busy London laws were once in existence for its protection, the birds being so numerous there as to attract the attention of foreigners, just as in our day the Doves, the Vultures, and the Storks in Eastern cities arrest our own.

At the present day the Kite must be looked upon only as an accidental visitor to England. In the southern counties there is no place now where it regularly breeds. There were nests in the large woods of Lincolnshire up to 1857; but since so much timber has been felled, the Kites have deserted that locality. A few pairs still remain in the secluded districts of Wales. When the first edition of Yarrell's 'British Birds' was published, the Kite still bred at Alconbury Hill, in Huntingdonshire, and the bird was said to become more numerous in the northern counties, where, however, no trace of it can now be found. Waterton spoke of seeing the Kite at his seat in Yorkshire; and, upon the authority of Dr. Heysham, it used to breed in the woods of the Lake district. At the present day it is seen but rarely in England. Some six years ago a specimen was recorded, said to be for the first time, in the Isle of Wight (Zool. 1876, p. 4760); and Mr. Gurney writes that he sometimes sees this bird in Norfolk, passing southwards in the autumn, in company with Buzzards. In Scotland it was formerly a very common bird, but is now rarely seen, and only breeds in one or two favourite localities in the counties of Inverness, Perth, and Aberdeen. It formerly bred in the west of Scotland, in Stirlingshire, Ayrshire, and the Isle of Arran, but now seems completely exterminated from these districts. Mr. Booth, in his 'Rough Notes,' mentions that the Kite is still found in various districts; and in most of the glens in which he collected eggs and birds, some six years ago, the birds were still present, although a few pairs seemed to have left the district. It does not seem to occur in any part of the Outer Hebrides; but, on the authority of Elwes, it is still seen in the island of Islay; and Dixon, when in Skye, in the summer of 1881, saw the remains of this bird nailed to the wall of a shed which served as a gamekeeper's museum. In the Orkneys and Shetlands the Kite appears still more rarely, Saxby having only on four occasions seen birds that may possibly be referred to this species. In Ireland it is only known as a very rare straggler.

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* Although the Kite has been almost universally known as *M. regalis*, and among continental ornithologists is known by no other name, Messrs. Newton, Sharpe, and Dresser have all three allowed themselves to be blinded by the rules of the British Association, and have unearthed a new name for this bird, which has been pretty generally adopted by modern English writers on birds.

The Kite does not occur in Iceland or Greenland. It is a bird exclusively confined to the Western Palæarctic Region, and may be said to breed in most parts of Europe, to be resident in the central and southern portions, and migratory in the north. In Sweden it is said to breed as far north as lat. 61°; but it is not known with certainty to inhabit Finland, whilst in Russia it breeds as far north as Archangel. These northern birds migrate southwards in winter; and at that season the Kite is a common bird in North-western Africa, in Algeria, the Dayats of the Sahara, and among the rocks of the Atlas, where a few birds also remain to breed. Its presence in Egypt, or in North-eastern Africa, is very doubtful; and Captain Shelley observes that he knows of no instance of its capture in the former country, where its place is taken by an allied bird, *Milvus ægyptius*. It occurs, however, on passage in Asia Minor, and winters commonly in Palestine. The western range of the Kite appears to be Madeira and the Canaries, where it is said to be a resident; and Dr. Dohrn also met with it in the Cape-Verds. Its eastern limit is somewhat difficult to trace. According to Eversmann it occasionally occurs about the Southern Volga; and Severtzow several times noticed it in the Government of Veronsk; whilst Pallas says it winters on the Lower Volga. As Sundevall, however, declares that this is a mistake, and as Bogdanow never observed it in the Volga region, and says that it becomes scarce in the province of Kieff, its eastern range is probably the basin of the Don. In North-east Russia, Sabanäeff, in his 'Avifauna of the Ural,' states positively that he has seen several Red Kites, amongst hundreds of *Milvus ater*, flying towards some dead animals in the Kaslinsky Ural; so that it would appear that the bird gradually retires westward as it approaches the southern limit of its eastern range.

The Kite may be easily distinguished upon the wing by its deeply-forked tail and the peculiar nature of its flight. For hours this bird will keep the air, sailing in slow circles without an apparent effort, with wings and tail expanded to their fullest extent, the latter ever and anon being twisted to assist it to describe its graceful curves. From this habit of sailing in the air the Kite has gained the almost universal name of "Glead"—a corruption of the word "glide," which aptly represents its beautiful aerial movements. The haunts of the Kite in Great Britain are now the wildest districts of Wales and the mountain-forests and glens of the Highlands. These are the places it selects for nidification; but at other times of the year it may be observed in the more open country where woods are scarce. Like most of its congeners, the Kite is a thorough wanderer, and will search miles and miles of ground for food. In its habits it is a shy and wary bird; and many of its actions partake of those of the Buzzards. In spite of its wandering habits, however, the Kite seems attached to certain districts, and may almost daily be seen high in air above them, progressing in graceful curves until finally lost to view. In its flight over the country it ever and anon pays more special attention to certain districts likely to contain its food, sailing once or twice above them, and then again passing onwards. Although it is said that the Kite is a migratory bird in Great Britain, still this statement is open to considerable doubt. The observations made by Mr. Booth point to the fact that it is a resident species; and I have known several instances of late years where the bird has been shot by gamekeepers in the winter months in districts where it is also to be found in summer. The birds that are seen in England during the autumn and spring months of the year are migrants, undoubtedly, and very often immature birds from the continent.

When in search of food the Kite moves along at a moderate height from the earth; but, like the Vultures, the Eagles, and the Buzzards, it soars to an immense elevation at times; and then its powers of flight are seen to perfection. His long narrow wings are now at their fullest expanse, and the tail is constantly in motion to guide him in his trackless course through space. Now he glides forward, anon mounts upward in ever widening circles; now remains fixed and almost motionless—then onwards again, seeming to swim instead of fly through the aerial ocean. The Kite has none of the dash that marks the Sparrow-Hawk or the Peregrine. His prey is taken on the ground; and hence his flight displays none of that impetuous rush that is so characteristic of those rapacious birds that pursue their prey in open flight.

From the peculiar nature of its flight, and from the inherent timidity of its disposition, the Kite was a very favourite object of pursuit when falconry was so largely practised as a sport. It was the custom to lure the Kite from its aerial height, sometimes by displaying a large Owl with a fox's brush attached to it, and then, when the Kite was low enough, to cast a Greenland or Iceland Falcon at it. The Kite, seeing its mistake, would instantly soar, going higher and higher, pursuer and pursued each striving to gain the sky of the other, until, as we are told, both would often disappear from sight. On the other hand the Kite has sometimes been trained to take an humble quarry, such as rats. As a proof of its docility and tameness, Mr. R. Langtry kept a pair of these birds which were allowed their liberty, but always returned to the lure on being called.

In the manner of taking its prey the Kite very much resembles the Buzzards, and even the Harriers. It is by no means a bold and powerful bird; for a clucking hen has been known to put it to flight, and the fiery little Sparrow-Hawk mobs it with impunity. The Kite takes its food upon the ground, and usually catches young or weakly birds or mammals, and does not even refuse to make a meal on carrion. Like all other rapacious birds, the Kite appears to have some favourite spot which serves it as a dining-table or larder, where the food brought to feed its hungry young is also plucked and otherwise prepared for them. The nest in the breeding-season is also a well-stocked larder, far more food being conveyed thither than is really consumed. In these places may be seen the remains of Grouse, Plovers, and young Curlews and Wild Ducks. In addition to this food the Kite also takes young hares and rabbits, mice and rats, frogs, lizards, more rarely snakes, and the larger coleopterous insects—creatures that are taken without much exertion or prowess. In former days, when the Kite was more abundant in these islands than it is now, it was said to be a great enemy to the poultry, young chickens forming a favourite object of its pursuit. At the present day, however, the Kite need cause the poultry-keeper no alarm. Its haunt now, where but a remnant of its former numbers find a last retreat, is in the wildest districts of Scotland, where the Red Grouse is probably its favourite fare. How the Kite manages to take so large and strong a bird as a cock Red Grouse is surprising; and it is most probably only the young and weakly ones that fall victims to its swoop. Mr. Booth also suggests that the Peregrine ofttimes unwittingly finds the Kite a meal, and puts a bird in its way that would never be secured unless weakly or wounded. As is well known, that bold rapacious Falcon often strikes a bird for mere sport, and will leave it where it lies; and there, no doubt, it is sometimes found by the less active Kite and conveyed away.

The note of the Kite may be compared to a wild plaintive scream or "mew," and is but rarely heard, save in the breeding-season. Unmusical as its cry may be, still it appears to be full of a wild harmony with the rugged scenery of its haunts, imbues them with life, and, when heard as the bird is sailing far overhead, lends a charm to districts where other bird-life is almost wanting.

The breeding-season of the Kite commences early in May, and in

Scotland, where a few nests are still to be met with in the most secluded glens, the pine-woods appear to be its favourite nesting-place. The Scotch fir is the tree almost invariably selected. According to Mr. Booth, whose experience with these birds in Scotland of late years makes his observations upon them the more especially interesting, the nest varies considerably in its position. Sometimes it is at the summit of a slender bending pine, sometimes amongst the broadly spreading branches of a gigantic fir—and at times at a height of but fifteen or eighteen feet from the ground, and placed close to the trunk where several large limbs branch out. In such a situation as this its bulky nest is often scarcely visible from below. It is made principally of dry sticks and twigs, the dead branches of pines, and lined with withered grass, moss, sheep's wool, old rags, scraps of paper, or, in fact, any old rubbish that is conveniently accessible. Few rapacious birds show such a partiality for collecting rubbish for their nests as the Kite; in fact it far excels the Jackdaw or the House-Sparrow in this respect, or even a tame Raven or Magpie. The nest is sometimes a very bulky structure, and is flat, similar to that of the Sparrow-Hawk.

I found the Kite by no means uncommon in the forests both of Brunswick and Pomerania, where it is a summer visitor, arriving towards the end of February or early in March, and leaving again for the south about the middle of September. Dr. Holland informed me that they are gregarious during migration; and on the 11th of last March I saw a flock of migratory birds, consisting of eight Kites, a Crane, and a Peregrine Falcon, crossing the Pyrenees near St. Sebastian. My kind friends Dr. and Prof. Blasius and Oberamtmann Nehrkorn undertook to show me plenty of Kites' nests in the Brunswick forests; and very successful they were. We took the first nest on the 4th of May, in a beech tree, about ninety feet from the ground. Both birds were flying over the forest all the time. The nest contained two highly incubated eggs, and was about twenty inches across and nearly as high. It was lined with all sorts of rubbish—old rags, part of a newspaper, a piece of embroidery, part of an old stocking, some moss, and goat's hair. The second nest we took on the 12th of May. It was on a comparatively slender side branch of an oak, about eighty feet from the ground, very long, about two feet by one foot wide. We knocked loudly on the tree; but the only result was that a Kite appeared and began to fly around; so we concluded that she had accidentally been absent when we arrived. Before, however, our climber had got more than a fourth of the way up to the nest she flew off, and both birds continued to fly to and fro over the tree. The nest contained three young Kites and the foot of a hare. It was lined with sheep's wool, some rags, blue worsted, and some paper.

We took the next nest on the 17th of May, in an oak tree, about forty-five feet from the ground. When we were about twenty-five yards from the nest the bird flew slowly off and wheeled round towards us. The nest was lined with rags, the remains of a worsted stocking, part of a newspaper (the 'Gartenlaube'), lumps of hair from a cushion, and brown paper. It contained two young Kites, the remains of a rabbit, and a hamster rat (*Cricetus vulgaris*). On the same day we shot a Kite from its nest in an oak about eighty feet from the ground, took another Kite's nest from an oak only forty feet from the ground, containing only one young bird, and took a fourth nest from an oak about thirty-five feet from the ground, containing two young birds. In neither of these two last nests was there any food; but both were lined with wool, rags, pig's hair, and bits of newspaper.

In Pomerania I only inspected one Kite's nest, which was at least two miles from any house; nevertheless it was lined with rags and paper. It is not known that the male assists in the task of incubation; but he feeds the female on the nest.

Sometimes the Kite will pick up a fish from the surface of the water in the same way that his near relation in the south does. At Riddagshausen I watched a Kite beating up and down over the lake, and once I saw it stoop down to the surface of the water and apparently pick something up in its claws, probably a fish, with which it flew away to a tree.

The eggs of the Kite are generally three, sometimes only two in number, and most closely resemble those of the Buzzards, but are, as a rule, distinguished from them by their more scratchy and streaky appearance. When newly laid they are the palest bluish green in ground-colour, which soon fades to white or nearly so, sparingly spotted and blotched with dark reddish brown, with a few shell-markings, ill-defined and pale purplish grey. Some specimens are far more heavily marked than others, being clouded and dashed with colour, similar to Rough-legged Buzzards' eggs; others are dirty bluish white in ground-colour, faintly streaked, in true Bunting style, with wavy pale lilac markings; and in others the markings are evenly distributed almost over the entire surface, mixed with scratches and streaks of colour, and sometimes massed thickly together on one end of the egg. They vary in length from 2·4 to 2·1 inch, and are seldom less than 1¾ inch in breadth, the short eggs being the roundest and bluntest. Fresh eggs may be obtained from the beginning to the end of April.

The general colour of the upper parts of the Kite is reddish brown, each feather with pale edges, those of the head and neck much elongated, greyish white streaked with brown; lower parts rufous-brown, streaked with dark brown; tail, which is deeply forked, reddish brown, with dark bars. Bill horn colour; cere, irides, and tarsi yellow; claws black. The female bird is rather larger than the male, and has the underparts more rufous and the head greyer.

MILVUS ATER.

BLACK KITE.

(PLATE 5.)

Accipiter milvus niger, *Briss. Orn.* i. p. 413 (1760).
Accipiter korschun, *Gmel. N. Comm. Petrop.* xv. p. 444 (1771).
Falco migrans, *Bodd. Tabl. Pl. Enl.* p. 28 (1783).
Falco ater*, *Gmel. Syst. Nat.* i. p. 262 (1788); **et auctorum plurimorum**—*Temminck*, (*Sundevall*), (*Kaup*), (*Layard*), (*Jerdon*), *Naumann*, &c.
Milvus ater (*Gmel.*), *Daud. Traité*, ii. p. 149 (1800).
Falco fusco-ater (*Gmel.*), *Meyer, in Mey. u. Wolf's Taschenb.* i. p. 27 (1810).
Accipiter milvus, *Pall. Zoogr. Rosso-As.* i. p. 356 (1826).
Milvus niger, *Bp. Comp. List B. Eur. & N. Amer.* p. 4 (1838).
Hydroictinia ater (*Gmel.*), *Kaup, Classif. Säug. u. Vög.* p. 115 (1844).
Milvus ætolius, *Schl. Vog. Nederl.* pl. 32 (1854).
Milvus migrans (*Bodd.*), *Strickl. Orn. Syn.* p. 133 (1855).

The Black Kite has no right whatever to be considered a British bird. It is included in the British list solely on the authority of a single example caught in a trap in the Red-Deer Park at Alnwick in May 1866 ('Ibis,' 1867, p. 253). This may have been a spring migrant which had accidentally overshot its mark; or it may have escaped from an aviary.

There are five forms of the Black Kite. One of these, *M. ægyptius*, distinguished by having a yellow bill, is probably specifically distinct. It breeds in N.E. Africa, Palestine, Arabia, and Asia Minor, occasionally straying into Greece, and wintering in South Africa. Of the other four forms, two (an eastern and a western) are northern races, and two (also an eastern and a western) are southern races. *M. ater* breeds in suitable localities throughout Europe south of the Baltic, and eastwards in Asia Minor, Palestine, Persia, and Turkestan. On migration it has been known to stray as far north as Archangel. It passes through N.W. Africa on migration, where a few remain to breed, and winters in Africa south of the Atlas Mountains. In Turkestan it meets and apparently interbreeds with *M. melanotis*, which extends eastwards through S. Siberia to China and Japan, many passing through Cashmere on migration to winter in India. This is a slightly larger bird, with the white at the base of the outer primaries extending below the wing-coverts, and the white on the margins of the feathers of the head confined to the forehead. Of the two southern forms, *M. govinda* is confined to India, where it is only subject to unimportant internal migrations, whilst *M. affinis* inhabits Australia, Malaysia, Siam, and Burma, occasionally wandering into India. In neither of these forms is there any white on the forehead or crown; the principal difference between them is one of size, the eastern bird measuring in length of wing from 16 to 18 inches, and the western bird from 17½ to 19½ inches. The former is said to have less white at the base of the primaries than the latter; but this seems to be a very variable character.

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* The Black Kite is best known as *M. ater* or *M. niger*; but the former name has not only been used by the greatest number of ornithologists, but is also the oldest of the two. Messrs. Newton and Dresser have, however, set a bad example in following Strickland in his adoption of Boddaert's name; and Sharpe has made bad worse by adopting a name which is practically unknown. There can be no doubt that Gerini was probably the first ornithologist after Linnæus who clearly discriminated between this species and the Common Kite; and under cover of the mischievous law of priority it is not improbable that some future ornithologist with more zeal than discretion will attempt to call the Black Kite *F. milano*, founded upon his figure (i. pl. xxxviii.).

The Black Kite is not only one of the commonest birds of prey, but also one of the most interesting, its aerial movements, great familiarity, and gregarious habits arresting the attention of the observer and fixing the bird upon his notice. The Black Kite becomes more numerous in the southern portion of its range. Dixon, when in Algeria, made the following notes regarding it:—" It is very generally supposed that the Black Kite is, like the Common Kite, an inhabitant of forests and wooded districts; but such is not invariably the case. In Algeria I met with the Black Kite in the most desolate of desert country, both on the plains and at altitudes of 7000 feet in the Aurés Mountains. I well remember to have seen this fine bird flying over the stony ground on which we obtained our new Chat (*Saxicola seebohmi*), where scarcely a tree or bush was to be seen, and where the only other large birds were a few Choughs and Ravens. In the oases of El Kantara and Biskra the Black Kite was also the commonest Raptorial bird. At the former place they evidently nested in the stupendous cliffs of the pass; for I constantly saw them entering and leaving the rocks. At Biskra they were to be seen hawking over the desert country in slow graceful flight. The Black Kite also inhabits the towns of Algeria as well as the wilderness, and in company with the Vultures plays the part of a scavenger—evidently a welcome and respected guest, for it is never molested by the natives. I usually saw this graceful bird flapping lazily along some fifty yards above the ground; and sometimes as many as half a dozen were in the air together, wheeling gracefully about in circles for no other purpose, it seemed, than their own enjoyment. At Constantine the Black Kite could be seen flying in company with the Egyptian and the Griffon Vultures; but I never saw it on the ground searching for garbage like those birds. Because it is left unmolested, the Black Kite is a very bold and fearless bird, and often soars just above the houses, and passes the observer within easy gunshot."

At Bayonne I observed the Black Kite sailing over the market-place for some time, and afterwards beating up the river picking up floating garbage. Its motions on the wing are very similar to those of the Common Kite; but the tail is shorter and much less forked, and the bird is altogether a smaller one. The Black Kite is said to arrive at Bayonne in March, and is very common until June, when it disappears. They are nearly all immature birds, adult examples being rare. I am informed by Dr. Holland that in North Germany the Black Kite arrives at the end of March or beginning of April, and leaves again in September.

In the Volga district the Black Kite is the commonest Raptorial bird, and also the most useful of its order. Bogdanow made many careful observations on the habits of this bird. He says:—"Upon my arrival at Astrachan I was greatly surprised at the numbers of Black Kites living in the town, and at their tameness. One could hardly throw any thing out of the window without two or three of these birds pouncing upon it. As soon as the August fishery commences, all these birds leave the town and go to the fishing-places, where the small and useless fish are cast away by the fishermen. The different localities inhabited by the Kite, and its occurrence in the steppes and valleys, certainly does not make it a formal resident of the plains; and its real habitation is the forest; there it breeds, and there it retires to roost. In the Volga district it never builds anywhere else but on trees; but in the Volga delta, where no oaks nor any other high trees exist, it constructs its nest on the very low trees which sometimes grow amidst reeds. In the wooded parts of Kasan their food consists of young hares, moles, mice, and small birds, and in the towns and villages of garbage. In the river-valleys it preys upon frogs, water-rats, ducks, and other water-birds; but in no case and in no locality does it despise carrion. Its migration from the province of Kasan commences in September, and draws to a close in October. This, however, largely depends upon the weather, as in dry and mild autumns, when there are many mammals on the steppes, they leave later."

Dr. Holland informs me that the Black Kite is very fond of fish, but that it only takes them from the surface and when they are swimming in the shallows.

I observed the Black Kite nesting in North Germany during the spring of 1882. About 20 miles from the coast, on the southern shores of the Baltic between Stettin and Dantzig, is the town of Stolp. About the same distance south of Stolp is the Lantow See, a lake about four square miles in extent, and surrounded on three sides by forests. This forest is principally composed of Scotch fir, with a few beeches and now and then an oak. The first "Horst" that we were shown was that of a Black Kite. The birds, which used always to be observed fishing on the lake, were, however, nowhere to be seen. They had probably deserted the locality in consequence of Ulrich, the forester, having shot at the bird as she flew from the nest the week before our visit. He probably wounded her. The nest was about 45 feet from the ground, in a beech in the fork of one of the main branches of the tree. It was an entirely new nest, built this year, rather shallow, and perhaps three feet by two and a half, outside measurement. It was built of sticks and lined with dead moss and a scrap or two of paper. It was situated at the boundary of the estate where it joins Bismark's estate of Varzin. The Bismark Platz, a clump of pines on a hill, looked down onto the nest. On this hill Bismark once picnicked; and the path by the lake-side under the nest is said to be a favourite walk of the great statesman. The nest was empty; but the Black Kite is so much shyer than the Common Kite that we thought she might have seen us and have flown away, though had she been there we ought to have seen something of her mate on the lake.

It is said that the Black Kite does not line its nest with rags; but this statement is not correct, for Salvin, who met with this species very commonly when birds'-nesting in the Eastern Atlas, found its nest adorned with pieces of the Arab burnous and lined with rags. He also states that its nest is usually built amongst the roots of a tree growing out of the rocks. The nest is often covered with fish-bones; and, according to Dr. Holland, the young are fed on reptiles and young birds. The Black Kite will also rob the nests of other birds when it is bringing up its young. In Southern Spain Saunders states that the Black Kite is quite a sociable bird, as many as ten nests having been found in a small patch of the forest; and the same authority also states that colonies of Sparrows often take up their quarters near its home.

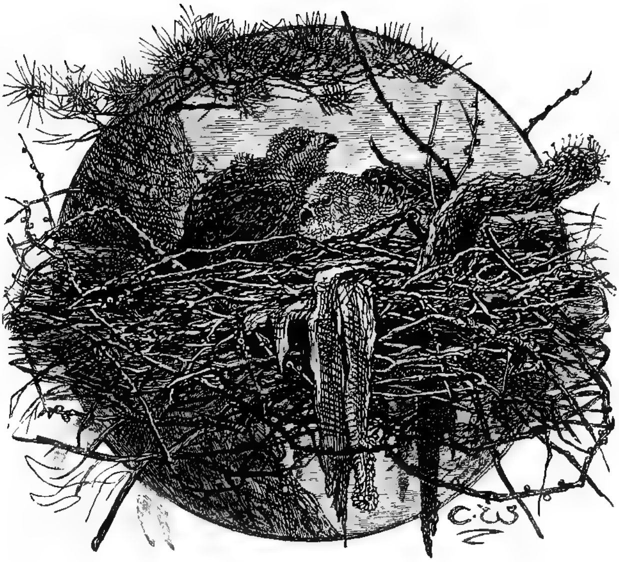
Goebel, who found many nests of the Black Kite in Southern Russia, states that the nest is very small, and that very often the head and tail of the sitting bird may be seen over each side of the nest. He also states that, if the eggs are taken before the full complement has been laid, the bird goes on laying, and will sit on the remainder; and should her eggs be taken, she lays again. He found fresh eggs during the last week in April and the beginning of May. When the nest is approached the parent birds will fly round the place uttering their cries.

I am indebted to Capt. Verner for the following interesting notes respecting this bird in the south of Spain:—"At Gibraltar I observed great numbers of Black Kites flying northwards, in company with Egyptian Vultures, Short-toed Eagles, Honey-Buzzards, and other birds, during the last week in March, in the years 1877–8 and 9. In May 1879 I was on board the Crown Prince of Austria's yacht on the Guadalquivir, and found the Black Kite nesting in great numbers in the pine-woods on the north bank. On the 26th I climbed up to several nests only to find them unfinished.

At last, however, I found one containing two fresh eggs. It was built on a horizontal branch near the summit of a lofty pine tree, and was constructed of sticks, lined with fragments of paper of all sorts and colours, and with an equally mixed assortment of dry dung (of horse, cattle, &c.). During the day the Crown Prince and some of his party found two more nests containing eggs very slightly incubated. The Black Kite breeds later than the Common Kite; for I found a nest of the latter containing three young, and Graf Wilszek took a clutch of three hard-set eggs. In all the nests that I visited there was a quantity of paper and dung. These pine-forests are frequently broken by broad strips of sun-baked mud, which during the winter are, no doubt, a series of 'lagunas.' The Black Kites congregated in numbers on these open places, where they crouch very much after the manner of Pratincoles. I crept under cover of some scrub to within a hundred and fifty yards of a party of twenty-two, and watched their proceedings through my binocular. Some were crouching on the ground, whilst others were walking about, apparently feeding. When they detected my presence they rose with a shrill tremulous cry. I came upon many such parties of them, and on each occasion tried to make out what they were feeding upon. The ground was as hard as iron, and the scanty vegetation on it brown and dead; so I conclude that they must have been catching some insects, judging from the frequency with which they pecked at the ground."

The eggs of the Black Kite vary from two to five in number, but in Pomerania two is the regular clutch. Goebel states that the number of eggs is usually three, occasionally only two. He has also found four, and on one occasion as many as five. The eggs of the Black Kite closely resemble those of the Common Kite, but are perhaps, on an average, more richly marked. The ground-colour is either dull white or the faintest of pale blue, more or less boldly spotted and blotched with browns of different shades. Some specimens are far more richly marked than others. In some eggs the markings are deep rich reddish brown, distributed in large patches, with scratchings and specks of lighter brown between. Others are finely powdered over the entire surface with freckles of colour, here and there becoming confluent, especially on the larger end. A very handsome variety has the smaller end clouded with pale brown, here and there marked with rich brown, and the rest of the egg spotted with pale brown and faint shell-markings of lilac. Another and more rare variety is streaked on the small half with pale brown, similar to a Bunting's egg, the streaks becoming confluent at the small end of the egg. Many Black Kites' eggs are almost undistinguishable from Common Buzzard's, and, except that on an average they are slightly smaller, scarcely differ from Common Kite's. They possess little or no gloss, and have the shell somewhat coarse in texture. They vary in length from 2·25 to 2·05 inch, and in breadth from 1·8 to 1·6 inch.

The Black Kite has a considerable superficial resemblance to the Common Kite, especially on the wing. It is a slightly smaller bird, with a somewhat shorter tail (the respective measurements of the latter are about 11 in. and 15 in.), which is decidedly less forked (the difference between the longest and shortest feathers being over 3 inches in one case, and under 2 inches in the other). The readiest mode of distinction, however, is the colour of the tail, which in the Common Kite is chestnut, and in the Black Kite dark brown. There is no difference between the two species in the colour of the soft parts.



NEST OF COMMON KITE.

Genus HALIAETUS.

The genus *Haliaetus* was established by Savigny in 1810, in his 'Système des Oiseaux de l'Egypte et de la Syrie,' p. 8, for the reception of *H. albicilla*, which therefore becomes the type. This genus had previously formed a part of the genus *Aquila* of Brisson. The latter was included by Linnæus in his genus *Falco*, and is one of Brisson's genera which are additional to those in the twelfth edition of Linnæus's 'Systema Naturæ,' specially admitted in the explanation of Rule 2 of the Stricklandian Code.

The Sea-Eagles may at once be distinguished from the true Eagles by having the lower half of the tarsus denuded of feathers, and from all other European genera of Raptorial Birds by its being scutellated on the front and reticulated behind, except from the Kites, which have the tail very long, more than four times the length of the tarsus. The claws are deeply hooked. The wings are long and ample, the tail slightly rounded. These birds are less vigorous than the true Eagles, although possessed of great strength and daring.

The genus *Haliaetus* is almost cosmopolitan. With the probable exception of the Neotropical Region, the Sea-Eagles are found throughout the world, from the Arctic regions to the tropics. In the British Islands but one species of the genus breeds, although another, the White-headed Sea-Eagle of North America, has been said to occur.

They feed much on carrion, fish, small and weakly quadrupeds, and reptiles.

They build large bulky nests on trees and rocks, made of sticks, roots, turf, and lined with moss and green plants and wool. The eggs are two or three in number, generally pure white, or sparingly marked with pale brown.

HALIAETUS ALBICILLA.

WHITE-TAILED EAGLE.

(PLATE 2.)

Aquila albicilla, *Briss. Orn.* i. p. 427 (1760); **et auctorum plurimorum**—(*Linnæus*), (*Gmelin*), *Pallas*, (*Cuvier*), (*Naumann*), (*Temminck*), (*Sharpe*), &c.
Aquila albicilla minor, *Briss. Orn.* i. p. 429 (1760).
Aquila ossifragra, *Briss. Orn.* i. p. 437 (1760).
Vultur albicilla [*misspelt* albiulla], *Linn. Syst. Nat.* i. p. 123 (1766).
Falco ossifragus, *Linn. Syst. Nat.* i. p. 124 (1766).
Falco albicilla (*Linn.*), *Gmel. Syst. Nat.* i. p. 253 (1788).
Falco albicaudus, *Gmel. Syst. Nat.* i. p. 258 (1788, *ex Briss.*).
Falco hinnularius, *Lath. Ind. Orn.* i. p. 15 (1790, *ex Charl.*).
Falco pygargus, *Daud. Traité d'Orn.* ii. p. 62 (1800, *ex Briss.*).
Haliætus nisus, *Sav. Syst. Ois. de l'Egypte*, p. 26 (1810).
Aquila leucocephala, *Wolf, Taschenb.* i. p. 16, pl. 4 (1810, *nec Linn.*).
Haliaëtus albicilla (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 9 (1816).
Falco albicilla borealis, *Faber, Isis*, 1827, p. 56.
Haliaetus brooksi, *Hume, Ibis*, 1870, p. 438.

Although the White-tailed or Sea-Eagle is far commoner in the British Islands than the Golden Eagle, still it is an inhabitant of the wildest and most secluded districts alone. Owing to incessant persecution it may now be fairly said to be extinct in England and Wales, save only as a rare straggler. In the British Islands Scotland is the home of the White-tailed Eagle. It breeds pretty regularly throughout the wild rocky islands of the Hebrides and the Western Isles, being particularly numerous on the rugged coasts of Skye, one of its most famous eyries being on the rocks known as "Macleod's Maidens" on that coast. Other eyries are in Eigg, Scalpa, North Uist, Benbecula, the Shiant Islands, Rum, and Canna. On the mainland it is much less numerous, although there are several breeding-stations in the wild districts of the west, from the Mull of Galloway to Cape Wrath. Ailsa Craig once contained an eyrie of this species, likewise the Mull of Oe, Bolsa, and the Bass Rock; but they have now been deserted for some years, only visited by a passing bird, attracted thither, it would seem, by old associations. Formerly this species was abundant in England, and bred in many suitable situations round the coast; but now its presence is for the most part confined to birds of the year, and adults on migration. Among the localities formerly frequented by this species in the breeding-season in Englandmay be mentioned Lundy Island, the Isle of Wight, the Lake district (so recently as 1835), and the Isle of Man. In Ireland the White-tailed Eagle is not uncommon in the mountainous districts, especially on the west coast. In Connemara I have often seen several on the wing together, and once climbed up to a nest with the help of a rope hung over the cliff. I have also seen the eyrie on the Blasquets, where these birds have bred from time immemorial.

The White-tailed Eagle is a Palæarctic bird, being confined to the northern portion of the eastern hemisphere and Greenland. It breeds in suitable localities throughout Europe, from the Arctic circle to the Mediterranean. It winters in South Europe and North Africa, a few remaining to breed in the Canary Islands, Algeria, and Egypt. Eastwards it breeds throughout Siberia, south of the Arctic circle, and winters in Persia, Turkestan, and South China, occasionally crossing the Himalayas into India. This Eagle has several close allies in various parts of the world. From the Crimea eastwards to India and Burma it is partially replaced by Pallas's Sea-Eagle (*Haliaetus leucoryphus*), a much more rufous-coloured bird, with a broad terminal black bar to its otherwise white tail. In North-east Siberia, North China, Japan, and Kamtschatka it is partially replaced by *Haliaetus pelagicus*, the largest Eagle known, and easily distinguished by having the thighs, rump, and lesser and median wing-coverts white. In the Aleutian Islands and throughout Northern America, with the exception of Greenland, the White-tailed Eagle is replaced by the well-known White-headed or Bald Eagle (*Haliaetus leucocephalus*). The latter bird has been said to have occurred in Europe; but no example killed on this continent is known. It is very easy to mistake old birds of the White-tailed Eagle for this species, especially on the wing.

The haunt of the White-tailed Eagle is not necessarily a maritime one, although the bird is more attached to the coasts and the sea-cliffs than the Golden Eagle. It may, however, be often seen far away from the ocean, choosing for its haunt some large inland lake, especially if there be lofty cliffs and rocky islets on which it can perch to scan the surrounding country. The haunts of this noble-looking bird are the brown hills of the Hebrides and the adjacent Isles, and the wild mountain-country of the mainland in the West. On the bold and rocky headlands of this wild rugged coast, whose hoary peaks are washed by the treacherous waters of the Minch, the Sea-Eagle finds a congenial home. The scenery of Skye is typical of this Eagle's favourite haunt. On that bleak and desolate isle it occurs in probably larger numbers than in any other place in Great Britain. Dixon writes of its occurrence there as follows:—"Almost every sheep-farm possesses one or two eyries; and in most of the remote and stupendous cliffs of the coast a pair have built their nest. Wild indeed are its haunts here; and from the great inaccessibility of its nesting-places, together with its habitual wariness, it will probably hold its own for many years to come, in spite of the price set upon its head. What scenery, for instance, is more adapted to the requirements of the solitude-loving Eagle than the tall bleak rocks of Storr or Tallisker ? or what is more favourable to his presence than the rocks known as 'Macleod's Maidens' and the cliffs round about them ? or what country so attractive as 'Macleod's Tables,' round about wild Dunvegan, or the fastnesses of Genbrittle ? Stray into districts such as these, far away from man's haunts and industries, and there it is the Sea-Eagle will come from out the mountain-mists yelping fright at your intrusion, and sail proudly onward, displaying his grand powers of wingmanship to your astonished and delighted gaze. Like the Golden Eagle the present species will often sit for long intervals silent and motionless on some tall rock-pinnacle, dreamily scanning the country or the waters below. Of all birds the Eagles are certainly the most difficult to approach, and rarely indeed have you the good fortune to get within gunshot of them. Aided with a good glass, however, you may often observe their attitudes as they sit on the pinnacles and shelves basking in the sun with expanded drooping wings, after the manner of Cormorants. Then see them launch heavily into the air, mounting upwards in wide curving flight; now sailing with wings fully expanded and the tips of the primaries slightly recurved, they sweep along over mountain, moorland waste, and sea, advancing seemingly with but little effort,

High o'er the watery uproar, silent seen,
Sailing sedate, in majesty serene.

A right grand sight indeed it is to see a pair of Eagles so engaged in the early months of spring, sailing lazily round and round in the dark blue heavens, ever mounting upwards, until the eye can but just discern them like minute specks moving in slow course along the sky. Or, better still, see two male birds in the love-season buffeting each other in the air, screaming out their peculiar yelping cries, and displaying so many singular postures as each seems to try its best to gain the sky of its opponent. The usual flight of the White-tailed Eagle, when passing from place to place, is performed by a series of slow and regular flappings; but its varied evolutions are beyond all description when engaged in aerial combat with one of its own species, or perhaps, better still, when mobbed by some troublesome Hawk, Gull, or Raven, whose nest it is too near. Although so large and powerful as the White-tailed Eagle is, still we have seen him completely beaten off by a Peregrine, and glad to seek safety in flight. Save in the nesting-season, White-tailed Eagles are for the most part solitary birds, although each pair haunts the neighbourhood of their eyrie the year throughout."

The roaming disposition of the White-tailed Eagle seems almost exclusively confined to young or immature birds. From the Tyne, northwards up the east coast of Scotland, immature specimens of this Eagle are usually met with in autumn; and at several of the bold headlands, notably at St. Abbs Head in Berwickshire, a solitary bird will make its appearance and remain a week or so until the supply of food is exhausted or the incessant persecution to which it is subject sends it off to more suitable quarters. Again, in the south-eastern counties of England this bird is often seen in the autumn months in immature plumage. In these districts they frequent rabbit-warrens, or take up their station on one of the large sheets of water, where they wage an incessant warfare on the waterfowl congregated there for the winter. Eagles of all kinds are thorough gipsies in their mode of life—here one day, fifty miles away the next, a flight of a hundred miles being nothing but a morning stroll for an Eagle. This circumstance, coupled with the fact that their haunts are so vast and difficult of access, explains why it is that the birds are so rarely seen, and why the impression is so deeply rooted that the birds are well nigh extinct in Great Britain.

In Pomerania, especially between Stettin and the Baltic, the Sea-Eagle is a common resident, breeding in the forests. It builds an enormous nest, sometimes six to eight feet in diameter, near the top of a pine or on the horizontal branch of an oak or beech, preferring forests near inland seas and large lakes. Instances have been known of its breeding in the same "Horst" for twenty years in succession. Every year some addition is made to the nest, until it becomes five or six feet high. Occasionally a pair of Sea-Eagles have two "Horsts," which are used alternately. They are shy birds, and leave the nest at the least alarm, but do not easily forsake their old home. If the eggs are taken early in the season, they will frequently lay again in the same nest. They make a very flat nest, and generally line it at the top with moss. The male and female are said to sit alternately, and the female is said to be shyer than the male at the nest. Two is the usual number of eggs; but frequently only one is found; in rare cases as many as three are laid. Eggs may be taken from the first week in March to the middle of April. The Sea-Eagle is more gregarious than other Eagles, and they are frequently seen to hunt together. They are by no means innocent birds, and often make considerable havoc in the carp-ponds. Though they do not refuse carrion, as many as six ducks have been found in a nest at one time, and they often take hares or even very young roebuck. In winter the number of Sea-Eagles in Pomerania is increased by migrants from the north. Dixon writes:—"Within my own observation the favourite food of this Eagle is the stranded fish and shore-garbage on the beach of its maritime haunts; while further inland a dead carcase or a weakly bird or animal are shared with the Raven and the Crows. I once remember to have seen a bird of this species alight on a drowned sheep lying on the shore of Loch

Follart, in Skye, on which a number of Hooded and Carrion Crows and a few of the larger Gulls were feeding. After surveying the carcase as he sailed round it in the air for a few moments, he finally alighted a few yards away, and then leaped forward to his meal. The Crows cleared out of his way, retiring to a little distance to watch his operations; while the Gulls, in light bouyant flight, hovered above or alighted on the sands, apparently waiting patiently for his departure. Before he had well settled down to his meal, however, a shepherd, whistling to his dogs on the cliffs near by, disturbed him, and he rose into the air with a large piece of the almost putrid flesh in his talons, and flapped lazily away over the loch towards Dunvegan Head, leaving the Gulls and the Crows in undisturbed possession to quarrel over their prize. Keen of sight as this Eagle is, still one is almost led to think that the Raven and the Crow are possessed of sharper powers of vision; for very frequently indeed it is led to its meal by seeing these birds congregated on a carcase. It may be, however, that the Crows and Ravens are more prying birds than the Eagle, and search every nook and corner more carefully. The White-tailed Eagle is also said to take living fish from their own element, something after the manner of the Osprey; but how the bird accomplishes this feat it is hard to conjecture, unless, when flying very low over the waves, it snatches some fish basking on the surface with its claws, conveying it to land to devour at leisure. When carrion is scarce the White-tailed Eagle seeks other prey—the ducks and sea-fowl, taking them more by stealth than prowess. In the winter months this species takes up its abode on the banks of a loch or inland sheet of water, to live almost entirely on the water-birds. Daily it may be seen in one particular tree, watching, in company with a pair of Peregrines, the ducks on the water, and waiting in the hope that they will rise and offer an easy capture. At this season the bird will come much nearer to man's habitation in search of garbage and refuse, ofttimes being hard pressed for food, although, in common with the Raptores generally, it is capable of great endurance."

The many tales told of this bird, as well as of the Golden Eagle and the Lämmergier, which are all represented as carrying off children, are no doubt myths; for, as Saxby, in his 'Birds of Shetland,' very justly remarks, every Eagle's eyrie in the islands is pointed out as *the* one made famous for all time by its owners carrying off that world-renowned baby in times so long ago as to be clouded in deep obscurity.

The White-tailed Eagle is undoubtedly mated to its partner for life; and even should one of the birds be destroyed the survivor will obtain a fresh companion in an incredibly short space of time—a habit peculiar to most, if not all, rapacious birds. For many seasons in succession this bird returns to its old eyrie, merely making a few necessary alterations each season, adding to the structure, or making good what damage it may have sustained during the storms of the previous winter. The site is varied according to locality, and may be on rocks, trees, or the ground. In the inland districts the birds usually select a rocky islet in the middle of a loch, where they either build their bulky nest on some ledge of the sloping ground, in a tree, or on the rocks, as occasion offers. Sometimes a site is chosen at some distance from the water in small open woods; but such instances are rare. Inland rocks, too, are often selected, in similar places to those which the Golden Eagle frequents—broken cliffs, often quite easy of access from above or below. But the most characteristic eyries of this bird in our islands are on the coast, built high up in the almost inaccessible rocks, hundreds of feet above an ever turbid sea, and in situations to which none but the most intrepid climbers dare venture. Some nests in these situations are indeed quite inaccessible, and the birds have remained in undisturbed possession from time immemorial. Two of these were visited by Dixon, who describes them as follows :—"One was, in the season of 1881, in the terrible cliffs of the 'Storr' rocks in Skye, its precise locality being unknown, although the pair of birds might be seen almost daily entering or quitting the rocks, or sailing in circles high in air above them. The other safely rests on the breast of one of Macleod's 'Maidens,' also on the coast of Skye; and I was informed that these nests have been tenanted for a great many seasons, presumably by the same owners. It may be the 'witching force of fancy; but the rocks which contain an Eagle's nest seem the grandest in the whole district, and the ones from which the most uninterrupted view may be obtained. Let us, while standing in this eyrie, endeavour to convey a word-picture of the scene around us. Far below are the deep-green waters of the ocean. On every side, and towering far above our heads, are the beetling cliffs, crag beyond crag, clothed with stunted herbage and here and there broken up into turfy banks. On these banks the sea-pinks and the primroses are full of fairest blooms, lending a delicious fragrance to the bracing air, now made resonant with the barking cry of the male Eagle, perched on yonder rock-stack—angry at our intrusion, although too timid to evince his displeasure in a more marked degree. The female Eagle, too, must be included in this picture. She is high in air above us, occasionally sweeping past the face of the cliff, well out of gunshot, and showing her anger by thrusting out her legs and expanding her sharp talons, as though anxious to seize us in their fierce grasp. Now an examination of the platform on which we stand. Here and there are scattered the large bones of various fish; and just on the edge of the nest a few Puffin's feet and an entire beak of that bird, together with numerous castings and droppings of the old Eagles on every side. The nest itself is a bulky structure—evidently the accumulation of years, flat in form, and about five feet in diameter. It is made of large and small sticks, matted slightly together, yet firm in texture, a few branches of heather, some of them quite recently obtained, others time-worn and bleached, and a few pieces of seaweed. It is lined with fine and coarse grass, a few leaves of the sea-campion, and one or two tufts of wool and turf, on which the two eggs, slightly dirty with nest-stains, lie so temptingly. Such is an average nest of the White-tailed Eagle. Sometimes, however, it is not so elaborately made, and the soft earth of the rock-ledge is almost the only bed on which the eggs lie; while yet again, when built on a tree, it is often of great size, and is a conspicuous object throughout the surrounding district."

Several instances are recorded of the Sea-Eagle breeding upon the ground. Herr Tancré describes a nest which he found upon the island of Hiddensoe, on the southern shores of the Baltic near Stralsund, on the naked meadow among the reeds. The nest was carefully made of sticks, and was about two feet high. Similar occurrences have been recorded from Jutland and the lagoons of Lower Egypt.

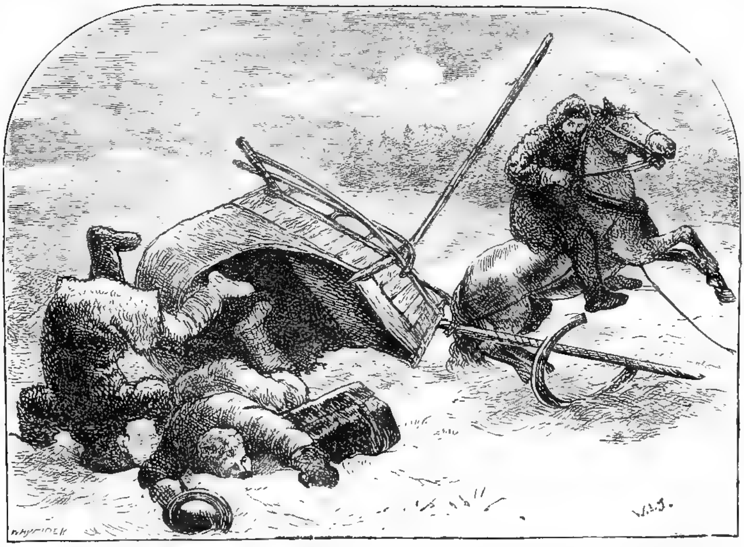
The eggs of the Sea-Eagle are roundish in form, slightly smaller than Golden Eagle's, and rather coarser in texture, and are pure white in colour; they vary from 3·3 to 2·75 inch in length, and from 2·4 to 2·1 inch in breadth. It is doubtful whether eggs of this bird ever have any true colouring-matter upon them, only a few brownish stains, received, in all probability, from the materials of the nest or the feet of the sitting bird. Although unspotted eggs of the Golden Eagle resemble eggs of this species, still the much coarser grain of those of the White-tailed Eagle serves as a sure guide by which to determine them. The young are hatched early in June, and are covered with greyish-white down, and remain in the nest some five or six weeks ere they are able to fly.

There are instances where several eyries of this bird have been built very close together, even in Scotland. Although the birds breed so frequently on the ocean-cliffs, still each particular "craig-an-Iolair" is otherwise deserted of bird-life, the Gulls and the Guillemots keeping at a respectful distance. Sometimes, however, a Peregrine Falcon's nest is quite close to the Eagle's; and the Raven will not unfrequently rear its young near at hand.

When able to forage for themselves the young quit their parents' company and their birthplace for ever, becoming thorough wanderers, until, if fortunate, they reach maturity, pair, and select some craggy haunt, some sea-girt fortress or inland loch, as a castle for themselves, or retire to some forest. Although not, perhaps, strictly gregarious, these young birds often hunt at no great distance from each other, searching the hills and shores in search of carrion or weakly birds and animals.

The upper plumage of the White-tailed Eagle is brown. The head and neck are paler, in very old birds almost white; the underparts chocolate-brown; tail white; bill, cere, irides, and feet yellow; claws bluish black. The female resembles the male, but is somewhat darker, larger in size, and has not the head and neck so lightly coloured. In young birds the beak is black, the cere darker than in adults, the irides brown, and the whole plamage more uniform in colour and much darker; the tail-feathers, too, are dark brown, not becoming purely white until the bird is some six or seven years old. In this stage of plumage it is the *Aquila ossifragus* of some authors.

Varieties of this bird sometimes occur. Meyer figures, in his 'British Birds,' a specimen taken in Ireland, which has the whole of the plumage a uniform bluish-grey colour. Gray, in his 'Birds of the West of Scotland,' mentions a specimen in the possession of Sir James Matheson, Bart., of Stornoway Castle, very bright in colour (a uniform yellowish grey) and of extraordinary size. Mr. St. John records a specimen pure silvery white, another albino specimen being also in the museum at Dunrobin Castle. Great differences of size are also to be observed in this species, its alar extent varying from six to seven, and even seven and a half feet.



Genus AQUILA.

The genus *Aquila* was established by Brisson in 1760, in his 'Ornithologie,' i. p. 419. Since Brisson called the Golden Eagle *Aquila aquila*, there can be no doubt whatever that *A. chrysaetus* is the type of the genus.

The Eagles may at once be distinguished from any other European Birds of Prey by their feathered tarsi, which are entirely concealed by feathers down to the toes, in this respect resembling most of the Owls. The genus *Aquila* is a cosmopolitan one, containing about thirty species. Nine only are found in Europe, of which three are British. Although large and powerful birds, the Eagles are not courageous. They feed much on mammals, birds, and reptiles. They nestle in cliffs and trees, some members of the genus on the ground, making large nests of twigs, turf, wool, and moss, and lined with green plants and foliage. Their eggs are from two to three in number, varying from pale bluish white to cream in ground-colour, with brown markings of various shades, and violet and grey shell-markings. Underneath the ground-colour there is always a pale bluish green, causing the shell, when the egg is held up to the light, to appear that colour.

AQUILA CHRYSAETUS.

GOLDEN EAGLE.

(Plate 2.)

Aquila aquila, *Briss. Orn.* i. p. 419 (1760; imm., probably second plumage).
Aquila chrysaetos, *Briss. Orn.* i. p. 431 (1760, adult).
Aquila melanæetus, *Briss. Orn.* i. p. 434 (1760, young in first plumage).
Falco chrysaetus, *Linn. Syst. Nat.* i. p. 125 (1766); **et auctorum plurimorum**—(*Gould*), (*Macgillivray*), (*Bonaparte*), *Naumann*, (*Jerdon*), (*Newton*), (*Coues*), (*Sharpe*), *&c.*
Falco fulvus, *Linn. Syst. Nat.* i. p. 125 (1766).
Falco fulvus β. canadensis, *Linn. Syst. Nat.* i. p. 125 (1766).
Falco pygargus, *Scop. Ann. I. Hist. Nat.* p. 14 (1768).
Falco melanaëtos, *Gmel. Syst. Nat.* i. p. 254 (1788).
Falco americanus, *Gmel. Syst. Nat.* i. p. 257 (1788).
Falco niger, *Gmel. Syst. Nat.* i. p. 259 (1788).
Falco cygneus, *Lath. Ind. Orn.* i. p. 14 (1790).
Falco melanonotus, *Lath. Ind. Orn.* i. p. 16 (1790).
Falco aquila, *Daud. Traité d'Orn.* ii. p. 47 (1800).
Aquila americana (*Gmel.*), *Vieill. Ois. Am. Sept.* i. p. 31 (1807).
Aquila fulva, *Sav. Syst. Ois. de l'Egypte*, p. 22 (1810).
Falco regalis, *Temm. Man. d'Orn.* p. 10 (1815).
Aquila nobilis, *Pall. Zoogr. Rosso-As.* i. p. 338 (1826).
Aquila regia, *Less. Traité d'Orn.* p. 36, pl. 8. fig. 1 (1831).
Aquila? daphanea, *Hodgs. in Gray's Zool. Misc.* p. 81 (1844).
Aquila barthelemyi, *Jaub. Rev. et Mag. Zool.* 1852, p. 545.
Aquila canadensis [*] (*Linn.*), *Cass. B. N. Amer.* p. 41 (1858).
Aquila intermedia, *Severtz. Turk. Jevotnie*, p. 112 (1873).

The Golden Eagle, one of the largest and most powerful birds of prey found in the British Islands, although occasionally seen and obtained in England, may now be said to be confined to the wildest and most isolated districts of Scotland and Ireland. Time was when the bird bred in England and Wales. In the days of Willughby it was said to breed on the cliffs of Snowdon; and that ornithologist also describes a nest found in Derbyshire in the year 1668. Wallis also states, in his 'History of

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[*] Dresser, in his 'Birds of Europe,' includes in the synonymy of the Golden Eagle "*Aquila canadensis* (Gm.), Wils. Am. Orn. pl. lv. fig. 1 (1808)." There appear to be no less than three inaccuracies in this quotation. The authority for the specific name *canadensis* is either Linnæus or Cassin, according to whether names which are quoted as varieties are recognized or not. Wilson, on his plate lv. fig. 1, calls this species Ring-tail Eagle, and in the text *Falco fulvus*. This plate illustrates vol. vii., which is dated 1813, although vol. i. is dated 1808. How is it possible to make so many blunders with Sharpe's 'Museum Catalogue' to copy from? Or is there an edition of Wilson of which we know nothing in this country?

Northumberland,' published in 1769, that the Golden Eagle bred on the highest and steepest part of Cheviot; and Sir William Jardine, writing in 1838, mentions the cliffs of Westmoreland and Cumberland as once its home. The Golden Eagle's only stronghold in our islands now is the western and northern counties of Scotland and throughout the Hebrides—and also in the wildest parts of Ireland, although the bird of late years appears to have decreased in numbers there. It also formerly bred in the Orkneys, but, according to the best authorities, has not been known to do so in the Shetlands. Outside the British Islands the Golden Eagle has a very wide and extensive range. With the exception of Iceland, it breeds throughout the greater part of the Palæarctic Region, from Scandinavia to North Africa, and from Spain across Europe and Asia* (except the extreme north, but as far south as the Himalayas), to Dauria and China, being migratory in the extreme limits of its northern range. In the Nearctic Region, with the exception of Greenland, it is found from the temperate to the Arctic regions, chiefly confined to the mountainous districts, but is nowhere numerous.

It is not till the vast solitudes of the Scottish Highlands are reached that the Golden Eagle may with any confidence be expected to be seen. Once, however, among the wild grand scenery there, and the imagination seems to create an eagle in every wild glen and on every rocky pinnacle. Glens and mountains are on every side of you—here a deer-forest or a birch coppice—there a rocky glen or a broad stretch of heathery waste, over which the Plovers and the Redshanks rising, scream at your intrusion. On every side the mountains rear their hoary peaks; and the clouds hang densely round them, hiding their summits, and giving them a truly wild and weird appearance. The wild scenery is enlivened and varied by a mountain-loch, with its hilly banks clothed in verdure to the water's edge. Streams roll down from the mountains in mad career; over huge rocky moss-grown boulders they fall and plunge, or flow slowly through still dark pools, where trout and salmon sport and birch trees hang so gracefully. Or, again, the scenery becomes desolate and dreary—grey rocks, stupendous hills, romantic glens and moors, in all their wild primeval seclusion, where the Eagle's barking cry and the hoarse croaks of the Raven and Hoodie are the only signs of life. Such haunts as these are the lordly Eagle's home, his hunting-grounds, his regal fastness; and hither you must repair if you wish to make his acquaintance. But the Golden Eagle is no common bird, and is often "not at home." Days and weeks may pass when not an Eagle is to be seen; for, except in the breeding-season, the bird is a thorough wanderer, and explores vast tracts of country in search of prey. It is also when not engaged with nesting-duties that the bird wanders out of its favourite haunts and visits more pastoral scenes. Then it is sometimes seen sailing proudly over the Lowlands, and, more rarely still, gets as far south as England and Wales; although there is no room to doubt that by far the greater number of Eagles reported to have been seen in this country are nothing but the far commoner Sea-Eagle, *Haliaetus albicilla.*

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* Dybowski obtained it near Lake Baikal, and Radde obtained it in the Amoor.

You may cage the proud king of birds, you may confine him in menageries, and observe him there; but to gain an insight into his nature you must see him in his haunts, where his eagle soul is unfettered, and where he can roam the mountain-tops at will. Far away from man's busy haunts, on the brown heathery hills of the north, you must seek him, where nature and her wildest scenery is yet unchanged, and the wilderness is wrapt in an endless solitude. See him perched on yonder grey pinnacle of rock overhanging one of the ravines of the snow-capped Cullins, and watching the blue hares sport amongst the rocks—or see him soaring in boundless freedom over the peaks of Rum and Canna, or hastening across the clear blue waters of the Minch to his nest and mate in the hoary fastnesses of Glen Brittle—then you see the Eagle as he is at home, free as the tempest, and the monarch of the wilds.

Most certainly the Golden Eagle, when he lives where game is scarce, is a pest—truly, indeed, "the pride and the pest of the parish," aye, and of the whole country-side as well. The Golden Eagle has been known, on one Highland sheep-farm alone, in the course of a single season, to carry off as many as thirty-five lambs. Probably the amount is underestimated; for on such immense tracts of country as the Highland sheep-farms it is impossible to tell how many lambs are really taken. It is in these districts, where game is scarce, that the Golden Eagle does so much harm; and it is scarcely to be expected that sheep-farmers will put up with the questionable pleasure of having the bird for a neighbour at such an expense of live stock. But in other districts the Golden Eagle is comparatively a harmless bird. In deer-forests Eagles are of the greatest service; for although they sometimes take a sickly deer-calf, they live almost entirely on the blue hares, so troublesome to the deer-stalker; and most certainly the deer are the better for the removal of the weak and sickly ones, which would only possibly live to transmit their diseases to posterity. The Golden Eagle strikes his prey, if it be a lamb, behind the head, and, as a rule, carries it off at once—to the nest, if the bird be burdened with family cares, or to some wild secluded place where he can consume it in peace. But lambs are not the Golden Eagle's only food. High up among the mountains, almost in a region of perpetual snow, the blue hare lives; and this interesting little animal forms his favourite prey. This hare, like the Ptarmigan and the stoat, changes its summer dress for one of purest whiteness when the winter commences—this change doubtless being effected from motives of self-preservation from the large raptorial birds that are almost its only enemies. The Golden Eagle (noble as he is thought to be) will eat carrion when pressed for food. Eagles are not noble birds like the true Falcons; and their claims to regal rank rest on their size and prowess alone. Here, for instance, a sheep, venturing too near the edge of the cliff, has lost its balance and been dashed to pieces on the rocks below. The Eagle has found it out, either by sight or smell, perhaps both, and made his meal upon its decaying flesh. Or, again, a dead rabbit lies on the cliffs, and the prowling Eagle espies it and carries it off bodily to his nest to feed its ever hungry young. The Eagle in his habits is more a Vulture than a Falcon; and his motions are sluggish, cowardly, and tame compared with the death-swoop of the Peregrine, or the brilliant performance of the Sparrow-Hawk or the Merlin, who would not deign to feast on such lowly fare. The Golden Eagle also preys upon various species of birds, notably the Blackcock and the Red Grouse, Ptarmigan, Curlews, and Plovers, dropping upon them unawares or simply taking the young and weakly ones; for never does the bird pursue and strike them like the true Falcon.

The flight of the Golden Eagle is truly a grand performance. Stroll up the mountain-side some bright May morning when there is but little wind and the sun is warm, and see the bird engaged in those aerial motions which have rendered him so justly famous as a mariner of the air. As you lie amongst the tall brown heather, dreamily gazing upward into blue space, listening, it may be, to the humming of the passing insects, or the bleating of the lambs on the opposite hill-side, and the croak of the Ravens from the "Storr," your eye is riveted to a dark speck high in air, and looking no larger than a Crow. Nearer it comes; the shepherd who perchance is with you exclaims with almost bated breath "Iolair dhubh!" (the Black Eagle); and breathless you watch the king of birds explore the air. Nearer and nearer he comes until he is directly above you—now flapping his broad wings at irregular intervals, now with them fully expanded, gliding round and round, without giving them any perceptible motion, the tips of the primaries separated and turned upwards, and the tail ever and anon turned from side to side as a rudder. Although he seems so near, he is still well out of the range of the heaviest shot, and for some time he busies himself by surveying our reclining forms on the hillside below him. But, see! the pair of Ravens that are nesting in the "Storr" are uneasy at his presence, and sally out to mob, if they dare, their king. Although pirates the same as he, they evidently do not put much faith in the old proverb of "honour amongst thieves," and croaking fiercely forth their displeasure at his presence, one flies above him, the other beneath, and each tries to buffet him. But prudence forbids, and they content themselves with noisy clamour, which is increased, in seeming exultation and triumph, as the

Eagle sweeps slowly onwards, rising higher as he goes to clear the neighbouring hills, and disappears over the summit to pursue his course over the adjoining valley. Follow him in imagination there; see him at last alight on yonder hoary crag, his favourite perch for a generation. Notice how gracefully he folds his long, broad wings, slightly drooping, his neck closely retracted, with its bright golden plumes glowing in the light. There he remains for hours basking in the bright sunbeams, digesting his meal, and collecting his energies for a fresh foray upon the defenceless and the weak. That favourite perch has been used for years and years. In fine and storm the monarch of the mountain seeks that favoured rock-pinnacle, there to bask in summer, or cling, firm as the rock itself, whilst the storm and the sleet drive past in blinding fury. This peculiar habit of choosing a certain perching-place is common to many of the larger raptorial birds; and it is often the place to which they convey their food and make their meal.

All raptorial birds are capable of great endurance, and will live for a considerable time without food; yet none are more hardy in this respect than the Golden Eagle, which has been known to fast for weeks. In Eastern Turkestan the Golden Eagle is a bird of the chase, the young birds being taken and trained for the purposes of falconry. Its quarry is antelopes and foxes, and, it is said, even wolves. These trained birds are carried about by a man mounted on a pony, who holds the bird on his wrist, which, together with his hand, is protected by a leather gauntlet.

The Golden Eagle is remarkably fond of bathing, and will often stand in a little pool for half an hour or more, scattering the water over its plumage and seeming to enjoy its submersion immensely. The number of stories about people being attacked by Eagles, and of their carrying off children, have, we are confident, but little foundation in fact. The Golden Eagle is a powerful bird; but he is not a courageous one, and often allows himself to be beaten off by a much smaller and less powerful antagonist. When its nest is menaced, the bird betakes itself clear away, never venturing within gunshot, and usually consoles itself by watching operations from a respectful distance, or leaves the place entirely.

Golden Eagles are most probably life-paired birds, and tenant the same cliffs for many years in succession. The same nest is not always used each season, especially if the birds be disturbed; but it will usually be found that they have several favourite places, which appear to be used in turn. Very early in spring the birds prepare their eyrie, by strengthening it, adding to it a new lining, and otherwise repairing what damage has been done by the storms of winter, much as the Rooks do; or if they are not so fortunate to possess a home, they commence building. As a rule, the Golden Eagle chooses an inland site—one amidst the mountains or overlooking a loch, but always in a commanding situation, and with a broad uninterrupted view of the surrounding country. The selected rock is usually a rugged one, partly a broken bank clothed with grass and ferns, and partly a precipitous cliff, the place in which the eyrie is made usually being sheltered by the overhanging rock. But the Golden Eagle does not always select an inland site, and occasionally breeds on maritime cliffs. An account of an eyrie in such a situation will doubtless prove interesting; for it certainly is the exception, not the rule, to find the bird breeding there. Dixon on this occasion made the following notes:—"One of the principal objects of my visit to the Western Isles in the early summer months of 1881 was for the purpose of trying to make myself acquainted with the Golden Eagle, his habits and his nest, in his own wild mountain solitudes. But the Golden Eagle is now a scarce bird. Time was when almost all the wild rugged cliffs possessed their pair of birds; but now, alas! the Golden Eagle's race is well nigh run in Britain, and one is bound to confess that, if protection is not soon vouchsafed to this companion of the wild Highland scenery, it will soon cease to be. I chose the island of Skye for my researches; and for the first week of my visit there the chances of making acquaintance with the bird seemed small. All the keepers and the shepherds I questioned on the subject gave me disheartening reports—one keeper having shot one of these noble birds the previous winter, and none had been seen on his land since; another had trapped the bird some few seasons ago, but said it had become very scarce; while a third proudly showed me the feet and heads of several Golden Eagles nailed to his dog-kennels! All agreed, however, that in this part of Skye (Portree) *the* Eagle was not to be met with; and I began to despair. Was the lordly Golden Eagle to be found or not? Contemporary writers of quite recent date speak of finding the bird here; but has the unwarranted persecution already done its work and banished him from the glens and mountains of Skye for ever? Such were my thoughts, when one evening I had the rare fortune to meet with a gentleman sheep-farmer of Skye, who informed me that there was a Golden Eagle's eyrie on his farm, and that one of his shepherds trapped the female bird that very day, and that he was taking it with him to have it preserved in Inverness. No time was to be lost, and I made a few hasty arrangements for an early start in the morning to the place, some four and twenty miles away on the west coast of Skye.

"After providing myself with the assistance of three shepherds and a long coil of rope, we started forth to harry Aquila's lordly castle. A four-miles tramp over the mountains in the bracing morning air served to nerve me for the task I had before me. The sun was just rising over the distant hills; a raven was croaking dismally from the 'Storr;' a pair of Peregrines were sailing in graceful circles high in air above; and the

Carrion-Crows and Hoodies, cunning fellows that they are, just kept at a respectful distance, and that was all. But we were not bent on such lowly game; our quarry was of *nobler* stamp, and I scarcely heeded them at all. I remember a Skylark trilled out its morning anthem; and the shrill screams of the Herring-Gulls and the Kittiwakes, and the harsh cry of the Oystercatcher, were repeatedly heard. On the hillsides one could hear the faint bleating of the lambs, whose enemies' castle we were about to storm. We reached the cliffs at last; a right glorious Eagles' home it was too. But so soon as we got to the brink of that terrible cliff, a loud barking cry rang shrilly out on the morning air, a yelping cry of defiance echoing amongst the rocks; and the Golden Eagle sailed proudly from his castle, carried so stately forward by his magnificent stretch of wing. A right royal bird he was; and all thoughts of his evil deeds were for the time forgotten. It was the Eagle—the king of the feathered race, the bird so famous in all times; and I was lost in admiration. As he sailed so grandly on, his rich dark plumage came out in bold relief against the blue waters far below, the morning sun causing his head and neck to shine like burnished gold. I paused to admire this feathered robber, this proud and unconquered bird of the mountains and the heaths. He speedily flew out to sea, ascending the air as he went; and when about three or four hundred yards from the cliff, I had an opportunity of observing his easy flight to perfection. Slowly sailing round in ever widening circles—now on motionless wing, now with rapid beats—he surveyed our unwelcome intrusion. Silent as death, now he swooped along, now elevating his long wings, hovering like some huge Kestrel; or, taking a long downward swoop, he passed directly opposite the cliff, the white patches on his wings coming out in strong contrast with his rich dark plumage. He did not long remain in our company, but went far out to sea; and I finally lost sight of him as he doubled a point some half-mile away, leaving us to storm his rocky citadel if we could or dared. As I said before, it was just the place one could imagine a Golden Eagle's eyrie to be in—the grandest piece of cliff on the coast, and the best for a look-out too. The cliffs were something terrible in their wild and rugged grandeur. They here rose fully 600 feet above the sea at least, partly in a sloping grassy cliff, broken here and there by precipices, and partly in a beetling rock. Far down below, the waters of the Minch dashed against its base, rolling through the caves with a sound like thunder—fitting artillery, I thought, for such a scene, a truly regal salute indeed to the noble bird's abode. Far down on the sea below, the 'Scoots' and the Gulls, looking not much bigger than Sparrows, were playing on the waves, or sitting on the rocks quiet and motionless. The grassy parts of the cliffs were studded with the fairest primroses and sea-pinks; and in all the rock-crevices the delicate spleenwort fern grew in lovely luxuriance. The nest of the Eagle was in a little grass-covered cavity about midway down the precipice, in a place where the rocks overhung, forming, as it were, a natural roof to the nest. The only way of getting to the nest at all practicable was from below; and after giving orders to the men, I and a shepherd commenced climbing down the rocks to the grassy platform at the base of the cliff. We were able to climb down some 400 feet without the aid of ropes, a cool head being all that was required; and when about some hundred feet or so from the eyrie, we awaited the arrival of the rope from above which was to assist me to the nest. The nest was built on a ledge of the cliffs, in a little grassy hollow, and was made externally almost exclusively of heather and a few large sticks, the lining being composed of dried fern-fronds, grass, and moss, in small quantities, and large tufts of green herbage. The nest itself was not very large nor deep; and the lining-materials were built quite close up to the wall of rock behind. The materials of the nest were not much interwoven, although they were very firm and solid. All round and about the place, and in the nest itself, were quantities of animal remains, fur and feathers, bones and decaying flesh of hares, grouse, and lambs; for the two young eaglets were rapidly coming to maturity. They opened their mouths, snapped their beaks, and retired to the further end of the nest; yet otherwise seemed to bother themselves little at the intrusion. The nest was a somewhat bulky structure too, perhaps some four or five feet in diameter. And what a noble view there was to be had! surely the Eagles were wise in choosing such a home. As I clung to the grassy face of the cliff, stupendous and rugged, every object was taken in at a glance—the sea beneath, the sky with its large masses of white clouds, the birds and all, even the fleet of herring-boats fishing in the Minch, some twenty miles away, and the bleak and rugged peaks of Rum and Canna, whilst 'hull down' on the horizon the Long Island lay in gloomy indistinctness, all serving to add a charm and a grandeur to the Eagle's wild abode. What an impressive scene! how wild, and yet how beautiful! Long may the Golden Eagle haunt the wild cliffs and mountains of that rugged shore; for so long as he is there the crowning object of its beauty is ensured! Surely it is worth an effort to preserve this last remnant of a noble race—a bird which must be so closely connected with the Scotch, their traditions, and their literature for all time. Surely the few lambs or fawns the Eagle takes is but a cheap price for its preservation and maintenance in the land to which it is so noble an ornament. Before it be too late, Scotchmen, protect your national bird, the Eagle of your ancestors, and stay the cruel war waged by grouse-shooter, deer-stalker, sheep-farmer, and skin-collector—a war which will, ere long, play its part but too surely, and take the Eagle from your mountains for ever!"

The eggs of the Golden Eagle are often laid before the snow is off the hill-sides; and very beautiful objects they are, varying very much in the amount of markings they contain, the well-marked egg certainly being the rule, not the exception. They are from one to three in number; but two is the usual clutch. As a rule, in the nests which contain three eggs one proves addled. They are laid at intervals of a few days; and as soon as the first is deposited the female bird commences to sit. Eggs of the Golden Eagle may be found representing those of all the other birds of prey; and almost every type occurs. Typical eggs of this species are dull white in ground-colour, with lilac-grey underlying shell-markings, and rich reddish-brown surface-blotches and spots. One of a pair of British specimens resembles an egg of the Iceland Falcon, the other is boldly blotched and dashed over the entire surface. Others, also British, are uniformly spotted with one or two deeper spots on the large end. A fine egg from Scotland has a dirty white ground-colour, dusted finely with reddish brown, heavily blotched and spotted over the entire surface with deep-brown markings; while the companion egg from the same nest is white and spotless. One of another pair, also British, resembles fairly typical eggs of the Common Buzzard, while its fellow is a pale and spotless bluish green, similar to the ground-colour of the Sparrow-Hawk's. Two fine clutches from Ireland are remarkably uniform, one of each pair being more thickly clouded with colouring-matter, the other with the spots more remote and the underlying violet dashes larger and more numerous. It is rare to get two eggs from the same nest resembling each other. One is usually more heavily marked than the other; and these characteristics may be observed in the same eyrie for many years in succession. In size they vary largely, Irish eggs apparently being the smallest. In shape they also vary considerably; even in the same nest one egg is often much rounder than the other. They vary from 3·1 to 2·7 inch in length, and from 2·5 to 2·2 inch in breadth. The eggs are hatched by the latter end of April or the first week in May; and the young are covered with down of snowy whiteness. The female Eagle sits very close; and should she be destroyed, the male bird undertakes the duty of incubation, and hatches and rears the young.

In some instances the Golden Eagle has been known to build its nest in a tree in Scotland; and on the continent, notably in Germany and Lapland, trees are selected, doubtless owing to the fact that suitable rocks are not to be found for the purpose. The young Eagles are tended by the parents for some little time after they quit the nest; then they abandon the place of their birth for ever. Before they leave their parents, they may from time to time be seen hunting in company, the old birds apparently teaching them to take and kill their own prey, which, at that time of the year, is largely formed of young Grouse, Ptarmigan, and leverets—helpless creatures, easily caught and overpowered.

Many continental ornithologists divide the Golden Eagle into two races or species. The northern form, *A. chrysaetus,* is said always to have some rufous colour on the breast, and in the adult bird has the basal half of every feather, including the quills and tail-feathers, mottled or marbled with brown, which gradually disappears, leaving the terminal half uniform brown. The southern form, *A. fulvus* (which I take to be the young), is said never to have any rufous colour on the breast, and the basal half of the small feathers of the body are said to remain white throughout life; but the white basal half of the quills and tail-feathers in the adult become mottled, similarly to that of its near ally, but more defined. I am, however, of the opinion that this so-called adult *A. fulvus* is only an intermediate stage between young and adult of *A. chrysaetus,* in which the quills and tail are a stage in advance of the smaller feathers of the body, which have not yet been moulted. Severtzow obtained examples in Turkestan exactly the reverse of this, and called them *A. intermedia,* apparently birds which had moulted the small feathers into the adult plumage, but still retained the immature quills and tail-feathers. At all ages the terminal half of a newly-moulted feather is a rich chocolate-brown, which gradually fades into a pale greyish brown, and the crown and nape are more or less rusty, approaching gold-colour in newly-moulted old birds. Irides rich hazel-brown; cere and feet yellow; bill and claws dark horn-colour. The female resembles the male, but is slightly larger. Accidental varieties, with one or two white feathers in the scapulars, occasionally occur: Messrs. Jaubert and Barthélemy-Lapommeraye record an example from the south of France; Loche met with several in Algeria; and Dixon saw one in Scotland. This peculiarity is permanently developed in the adult Eastern Imperial Eagle, and is said frequently to occur in the Booted Eagle. In von Homeyer's magnificent collection of Eagles I observed examples of both young and adult Lesser Spotted Eagles with one or two white feathers in the scapulars. The Golden Eagles figured by Dresser are so hopelessly bad that it is impossible to believe that they were drawn by Wolf, the statement on the plate to that effect being no doubt a misprint. At no stage of plumage has the Golden Eagle a regularly barred tail, as there represented; nor have I ever heard of any local race supposed to possess one. A circumpolar bird like the Golden Eagle is sure to present some local variations in colour; but none of these have been satisfactorily determined. The British and Scandinavian birds are more rufous (less grey) than those from Central Europe, and American birds are still more so; but how far they may be subspecifically separable has not yet been ascertained.

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AQUILA NÆVIA.

LESSER SPOTTED EAGLE.

(Plate 2.)

Falco maculatus*, *Gmel. Syst. Nat.* i. p. 258 (1788).
Aquila nævia, *Meyer*, *Taschenb.* p. 19 (1810); et auctorum plurimorum—(*Naumann*), (*Temminck*), *Gould*, *Gray*, *Bonaparte*, *Schlegel*, *Newton*, *Heuglin*, &c.
Falco naevius, *Naum. Vög. Deutschl.* i. p. 217, pls. 10, 11, figs. 1, 2 (1820).
Aquila planga, *Bonn. et Vieill. Enc. Méth.* iii. p. 1190 (1823).
Aquila pomarina, *Brehm*, *Vög. Deutschl.* p. 27 (1831).
Aquila maculata (*Gmel.*), *Dresser*, *Ann. Nat. Hist.* 1874, xiii. p. 373.
Aquila rufonuchalis, *Brooks*, *Stray Feath.* 1876, p. 269.

The Spotted Eagles differ from the Steppe Eagles in having round instead of oval nostrils, and in having long tarsi, longer than the distance from the point of the bill to the back of the head. There are four races of Spotted Eagles, which are probably only subspecifically distinct. The Spotted Eagle *par excellence*, *Aquila clanga*, has a very wide range. It is found in the Pyrenees, the Alps, Albania, the Lower Volga, Turkestan, India, Mongolia, and Northern China. The local race peculiar to Europe, the Lesser Spotted Eagle, *Aquila nævia*, breeds in North Germany from Hanover to Dantzig, extending southwards to East Turkey and North-east Greece, where its breeding-range joins that of the wide-spread form. It is not known that there is any difference in the adult birds, except that the average size of one is a little smaller than that of the other, as the following measurements of the length of the wings, measured with a tape on the convex surface, show, the figures in brackets being the number of examples which I have measured :—

	Males.	Females.'
Aquila nævia	(16) 18 to 20 inches.	(10) 19 to 21 inches.
Aquila clanga......	(19) 20 to 21½ ,,	(9) 21 to 22 ,,

Young in first plumage differ in colour as well as in size. The young of the smaller form have a well-defined yellowish-brown patch on the nape, whereas in the larger form the ends of the feathers of the nape are sometimes, but not always, pale. The pale spots on the ends of the feathers of the upper parts of the smaller form are only well developed on the innermost secondaries and on the wing-coverts, whereas in the larger they are well developed also on the scapulars, and especially so on the rump. The other two local races are found in India. *A. fulvescens*, with the head, neck, and underparts pale chestnut instead of brown in the adult, is only known to breed in India. Immature birds are also fulvous, combining the dimensions of the smaller form with an even greater development of spots than in the larger form. *A. hastata* is common to India and Cochin China. It has the dimensions and colour of *A. nævia*; and adults of the two races are inseparable; but the young have no nuchal patch, and also resemble the young of *A. clanga* in having frequently traces of bars across the innermost secondaries, the scapulars, and the rectrices. At best they are only local races. If they were treated as good species, and the same principles carried out in other genera, the number of species of Palæarctic birds would be doubled.

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* The absolute impossibility of arriving at a uniform nomenclature under the Stricklandian laws of priority of publication and clear definition is well exemplified in the history of the nomenclature of the Lesser Spotted Eagle. Messrs. Newton, Sharpe, Dresser, and Gurney have each of them endeavoured to carry out these rules to the letter; and instead of uniformity being the result, we find that they have each selected a different name for this bird. The first step towards attaining uniformity of nomenclature is to discard these rules before they have produced more confusion.

In the 'Ibis' for 1877 Mr. Gurney refers the two Spotted Eagles killed in Cornwall, and recorded in the 'Zoologist' for 1861, to *Aquila clanga*, the Larger Spotted Eagle. In Dresser's 'Birds of Europe' this decision is quoted and indorsed. I believe, however, that I am in a position to prove that it is an erroneous one, and that it is the Lesser Spotted Eagle (to which species Dresser gives the name of *Aquila pomerina*, but which the great majority of ornithologists have called, and, doubtless, will still continue to call, *Aquila nævia*) which has occurred in Britain.

The error has, doubtless, arisen from the extreme poverty of English collections in examples of these Eagles. In some of the continental museums they are, however, largely represented: in the magnificent collection of E. F. von Homeyer in Stolp I devoted a day to an inspection of the regiment of Spotted Eagles, all carefully selected examples picked out of some hundreds that have passed through his hands. Of the British-killed examples one bird, shot in Cornwall on the 15th December 1860, recorded by Mr. E. H. Rodd ('Zoologist,' 1861, p. 7311), is described as a male; length of wing 20 inches. The measurement of a second example, shot at St. Columb ('Zoologist,' 1861, p. 7817), is not given; but Mr. Gurney, who has measured this example, which is now in the Truro Museum, gives it as 19¼ inches. Mr. Warren has been kind enough to measure the example in the Dublin Museum, which was shot near Youghal in January 1845, and informs me that it is 19¾ inches.

It seems to me that the St. Columb bird is undoubtedly *A. nævia*, as is also the Youghal example. The first Cornwall Eagle is not quite so clear. It may be a large male *A nævia* or a small male *A. clanga*. Under any circumstances it is very poor evidence for the admission of *A. clanga* as a British bird.

The Spotted Eagle is still a common bird in Pomerania during the breeding-season. It arrives early in April, and leaves again for the south early in September. It is a somewhat local bird, being almost entirely confined to forests which are swampy, no doubt in consequence of the ease with which it can obtain frogs in such localities. I was surprised to find how absolute this rule appeared to be in the forests near Stolp. In the dry forests we searched in vain; but in those which were swampy we never failed to hear of or to find the nest of this bird. It was very late for eggs of birds of prey when I visited this district; but I saw several nests of the Spotted Eagle. The first was on the 30th of May, in a forest overlooking the Lantow See. The situation was charming. On three sides of the lake the hills were covered with forest, and on the fourth beyond the reeds, where the Great Reed-Warbler and a colony of Crested Grebes were breeding, some marshy ground led to the meadows and arable land. We crossed the lake, which has an area of about four square miles, in a boat, and had scarcely landed before we heard the cry of a Spotted Eagle, a loud, clear, rich-toned *ke-up*. It is said that the female often betrays the position of her nest by crying for food to the male, who feeds her whilst she sits. Dr. Holland and I were looking with proper ornithological veneration at the large flat nest of a Black Stork, which the forester pointed out to us about thirty feet from the ground in a beech, but which had not been occupied for the last year or two, when we heard a rustle of wings near us. Turning round we saw a large "Horst" in a lofty beech about seventy feet from the ground, on which an Eagle was standing. She had evidently heard us talking and had got up. Before we reached the tree she took wing, descending slowly for some distance and then ascending to clear the trees, so that we could see the large white spots on her back quite distinctly. The tree was difficult to climb; but with the help of ropes the nest was at last reached. It was an unusually large structure, four feet long, two and a half feet wide, and two feet high. Like the nests of all birds of prey, it was very flat, the depression in the centre not being more than four or five inches. The foundation was composed of sticks nearly an inch thick; but at the top they were very slender. The final lining was slender beech-twigs with fresh green leaves on them. There was also a little down, and a feather or two, which had probably been accidentally rubbed off the breast of the parent bird. The nest contained two eggs nearly ready for being hatched. During the whole time that we were at the nest both birds continued to sail round and round over us. Occasionally we heard them cry; and once one of them perched on the top of one of the neighbouring trees.

The second nest I saw was on the 6th of June. Herr von Putkammer had kindly invited me to inspect a heronry on his estate; and after dinner we drove to a neighbouring forest, where Herr von Homeyer was to introduce me to the Red-breasted Flycatcher. In the course of our walk in the forest we started a Spotted Eagle from her nest about eighty feet from the ground in a beech tree. She flew slowly off, and alighted on the summit of a pine tree not far away, where we watched her for some time.

On the following day, in a swampy forest between Stolp and the sea, we took another nest of the Spotted Eagle. This time it was in a grand old oak in a beech-forest interspersed with a few oaks and birches. It was about sixty feet from the ground. The bird was on; and as I was anxious to obtain a specimen, we stationed ourselves round the tree. Tapping on the trunk of the tree and shouting failed to alarm her; so we fired a shot, when she flew off rather rapidly and fell to the forester's gun. She proved to be a fully adult female. The nest was large, two feet in diameter, and very flat. The final lining was fresh green grass. It contained two eggs, one of which was chipped.

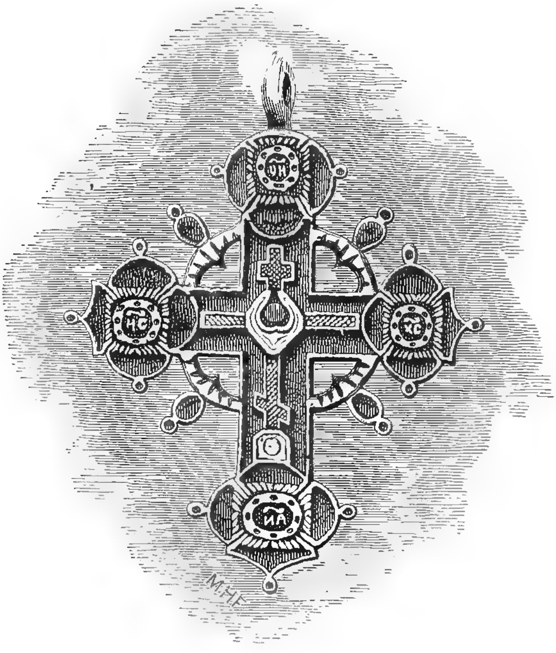
A couple of hundred yards off was last year's "Horst," somewhat the worse for a year's wind and rain. It was built in the fork of a birch tree where five branches sprung from the main stem, about forty-five feet from the ground.

On the 11th Dr. Holland showed me two nests of the Spotted Eagle in another forest, from which he had obtained the eggs. Both were in beech trees, one about thirty-five and the other about sixty feet from the ground. He told me that he had seen nests of this bird in Scotch fir trees. The nest has once been found on the ground ('Journ. für Orn.' 1855, p. 510). The male is said occasionally to relieve the female in the duties of incubation.

Although the Spotted Eagle looks very aquiline, sailing majestically in grand sweeps over the forest, its habits appear to be very much like those of the Buzzard. It rarely pursues its prey on the wing. Now and then it may surprise a small bird on the ground; but its principal food is frogs. It is said to run after lizards and snakes, to eat grasshoppers and other insects, the remains of which have been found in the pellets cast up by the young birds, and even not to disdain carrion.

The time to obtain fresh eggs is the first half of May; and the number in each nest is almost invariably two. Now and then one only is laid; and instances are on record of three eggs having been found in one nest; but these are extremely rare. The female is said to sit three weeks. The eggs vary considerably both in size and colour, and are best described as miniatures of those of the Golden Eagle. The surface is dull and somewhat rough, and both ends are very nearly alike in shape. They vary in size from 2·65 by 2·15 inch to 2·3 by 2·0 inch. The ground-colour is a more or less creamy white. The two eggs figured were collected by Dr. Krüper in Macedonia, and are fair average examples. Some are much handsomer, almost like eggs of the Osprey, whilst others are scarcely spotted at all. Not unfrequently the spots are confluent, occasionally at the larger end, but more often at the smaller end. The colour of the spots is generally a brownish brick-red; but sometimes they are a rich dark blood-red. The underlying spots are dull purplish, and seldom very conspicuous; occasionally, however, they are a chief feature of very handsome eggs.

The general colour of the Lesser Spotted Eagle is a uniform brown, the colour of the newly moulted feathers being rich chocolate-brown, that of the old abraded ones greyish brown. Bill dark horn-colour, cere and feet yellow, claws black; irides yellowish brown. The female resembles the male, but is larger in size. Birds in first plumage have a rusty patch on the nape, which gradually fades as the bird gets older; the scapulars, wing-coverts, and innermost secondaries have a terminal greyish-white spot. The underparts are streaked with rufous-brown.



AQUILA LAGOPUS.

THE ROUGH-LEGGED BUZZARD EAGLE.

(PLATE 5.)

Accipiter falco, *var.* leucocephalus, *Briss. Orn.* i. p. 325 (1760).
Falco lagopus, *Brünn. Orn. Bor.* p. 4 (1764).
Falco norvegicus, *Lath. Gen. Syn. Suppl.* i. p. 282 (1787).
Falco lagopus, *Brünn. Gmel. Syst. Nat.* i. p. 260 (1788); **et auctorum plurimorum** —*Naumann*, (*Gould*), *Schlegel*, (*Gray*), (*Newton*), (*Salvadori*), (*Sharpe*), (*Dresser*).
Falco sclavonicus, *Lath. Ind. Orn.* i. p. 26 (1790).
Buteo pennatus, *Daud. Traité*, ii. p. 156 (1800).
Falco plumipes, *Daud. op. cit.* ii. p. 163 (1800, *ex Levaill.*).
Buteo lagopus (*Brünn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 10 (1816).
Archibuteo lagopus (*Brünn.*), *Brehm, Isis*, 1828, p. 1269.
Butaëtes lagopus, *Bp. Comp. List B. Eur. & N. Amer.* p. 3 (1838).

The Rough-legged Buzzard Eagle is a somewhat aberrant species of the genus *Aquila*, inasmuch as the back of the tarsus is not feathered. It has hitherto been placed among the Buzzards. Sharpe, in his first volume of the 'Catalogue of the Birds in the British Museum,' separates the subfamily of *Aquilinæ* from the subfamily of *Buteoninæ*, characterizing the former as having the back of the tarsus reticulate, and the latter as having it scaled. He figures the tarsus of the Rough-legged Buzzard Eagle with the feathers at the back parted to show the scales, in order to prove that, although the species in his genus *Archibuteo* have the front and sides of the tarsus feathered like some of the Eagles, they have nevertheless the back of the tarsus scaled like true Buzzards, and not reticulate as is the case with those Eagles in which the tarsus is not feathered. Unfortunately for his argument, the back of the tarsus of the Rough-legged Buzzard Eagle happens not to be scaled, but is reticulate, as is also the case with the other species in his genus *Archibuteo*; so that they are certainly Eagles and not Buzzards, according to his own definition. The Eagles and the Buzzards are so nearly related that there can be no excuse whatever for placing them in separate subfamilies; and the Rough-legged Buzzard Eagle and its allies differ so little from the true Eagles that there seems no adequate reason for considering them more than subgenerically distinct. My friend Dr. Gadow informs me that he has dissected many of these birds, and that he has found that in many points of their anatomy the Rough-legged Buzzard Eagle and the Spotted Eagle are very closely allied. I have therefore discarded the use of the genus *Archibuteo*, as being a name likely to mislead.

The Rough-legged Buzzard Eagle can only be looked upon as a pretty regular but rare visitor to the British Islands, occurring most commonly in the immature plumage and in autumn. Although it has been obtained in almost every county of England, and in certain years appears in large numbers, but two reliable instances have been recorded of its remaining to breed in Great Britain. Respecting one of these instances, particulars are given by Mr. A. G. More in the 'Ibis' (1865, p. 12), furnished to him by Mr. Alwin S. Bell, of Scarborough, as follows:—"Mr. John Smith, who was gamekeeper for twenty years on the estate of Sir J. V. B. Johnstone, remembers the Rough-legged Buzzards perfectly well; there was no mistake as to the species, as they were feathered right down to the toe-ends. They used to breed, year after year, on the ground, amongst the heather, in the moor-dells near Ash Hay Gill, Whisperdale, about three miles from Hackness. One pair only bred every year during most of the time that Mr. Smith was keeper (twenty-four years ago). They were not seen except in the breeding-season. Mr. Smith has himself shot them from the nest, and remembers that they sometimes had young." Mr. Edward, of Banff, says (Zool. 1856, p. 5201) that its nest has been found in that neighbourhood; and in confirmation of this statement he says that in the season of 1864 he saw three young birds which were taken by a boy from a nest in a wood some six miles from the town. In Scotland its appearance is usually in autumn, in some years far more plentifully than in others; and as these birds are undoubtedly migrants from Northern Europe, it is but natural that they are far more frequently seen on the east coast than the west. Certain places in the Peak of Derbyshire, as Strines, and the moors near Sheffield, appear to be in the direct line of migration of this species, and rarely a year goes by without birds either being obtained or seen; but they do not appear to winter there. In the southern and western counties of England it appears to occur less frequently than on the east coast; but in the eastern counties it may almost be said to be a regular visitor, varying considerably in numbers in different years. In Ireland it is an extremely scarce visitant, this country being too far to the west of its regular southern flight; nor does it ever appear to visit Greenland, Iceland, or the Færoes.

The true home of the Rough-legged Buzzard Eagle is in the northern portions of the European and Asiatic continents. It breeds throughout Arctic Europe and Asia, being a very common species in Norway and Sweden, up to the North Cape, becoming rarer in Russia, yet more plentiful in Siberia, where it ranges as far to the east as the watershed of the Yenesay and Lena. In the winter it retires southwards, to various parts of Central and Southern Europe and the steppes of Russian Turkestan. How far to the south this species strays it is difficult to say; but it has never been seen in India or Persia, nor does it ever appear to cross the Mediterranean.

In Nepal, Thibet, and possibly in China the present species is represented by *A. strophiatus* of Hodgson, which has the crown of the head, throat, and chest uniform brown; whilst on the North-American continent its place is taken by *A. sancti johannis*, differing in its more rufous and darker plumage.

In this country, if any direct *habitat* can be assigned to a species that occurs but as a wanderer, the Rough-legged Buzzard Eagle appears to prefer open country—tracts of wild moorland and especially rabbit-warrens, and low-lying districts devoid of timber—marshy places abounding with wild fowl and the smaller mammals which compose its food. In its general habits it more closely resembles the smaller Eagles than the Buzzards. Although a sluggish-looking bird, it is by no means slow on the wing, is capable of much rapid graceful movement, and may sometimes be seen gliding along, eagle-like, with outspread wings and tail, surveying the ground below. Like the Eagles, too, the present species seems not to have that love for wooded districts and forests which is so marked a trait in the character of the Common Buzzard, but resorts to wilder districts amongst the mountains. In the breeding-season the Rough-legged Buzzard Eagle ofttimes betrays the site of its nest by its plaintive wailing cry, something like the mewing of a cat, and which is much louder than the note of the Common Buzzard.

A diurnal bird, its food is obtained in the daytime, sometimes just in the evening's dusk, and its hunting-grounds are for the most part the open tracts of country. Here it leisurely sails, at a moderate height, ready to pounce down upon the usually small and insignificant creatures that form its food, which is composed of small mammals of various kinds, such as field-mice, lemmings, and moles, frogs, lizards, and also young rabbits and hares. When pressed by hunger it will often feed on carrion, like the Eagles; but it does not appear to prey much on birds, unless when it discovers them wounded and comparatively helpless. This bird has been known to follow the sportsman, and actually seize dead birds, an interesting note respecting this being found in Stevenson's 'Birds of Norfolk' (i. p. 31).

I have never taken the nest of the Rough-legged Buzzard Eagle; but my friend Harvie-Brown has lent me the journal of his visit to the Fille Fjeld in South Norway, in company with the late Mr. E. R. Alston. In the wild rocky valleys of this district, three to four thousand feet above the level of the sea, this interesting bird breeds in considerable numbers, and many nests were taken during the month of June. In 1871 fourteen breeding-places were known in this locality, all of them in the clefts of more or less inaccessible rocks. In every case a rope was necessary to secure the eggs; but the inhabitants pointed out many old breeding-places in easily accessible cliffs, leading to the supposition that the selection of more secure sites is a habit recently acquired, in consequence of the persecution of modern ornithologists. The following is a condensed account from the notes made on the spot by Harvie-Brown of the taking of a nest of the Rough-legged Buzzard Eagle at Valdersdal:—The nest was first visited on the 15th of June. The 'Fjeld Örus' rock was reached after a walk of about ten miles over deep snow-drifts. Early in the day the walking was easy over the frozen snow; but later on progress became more difficult, some of the party occasionally sinking up to their hips in snow. The ice had not yet left the lakes on the high fjelds; and the appearance of five reindeer did not make the scene less winterly. Arrived at the rock, the male bird was seen sitting on a boulder at the top, and the female soon left the nest. Harvie-Brown fired at the male but missed him, and climbed up to within twelve feet of the nest. Whilst he was descending the female flew on again. The party then made a detour to reach the top of the nest, and one of them was lowered down with a rope, which proved too short. The female remained sitting; big stones were rolled down, crashing past the nest within a few feet of it, but she would not move. For two hours all attempts to dislodge her proved in vain, although two shots were fired, one bullet passing through the edge of the nest. All this time the male kept flying round at a great distance. On the following day the party returned to the nest with a longer rope, seeing the reindeer again *en route*. This time the female flew off at once; and Harvie-Brown shot her whilst his collector, Lars Eraker, was attempting to reach the nest. In this he was unsuccessful. Six days afterwards they visited the nest with Peder Hongen, a more active collector. The snow was still perfectly crisp, and it was easy to walk on the high fjelds. Peder simply took the rope in his hand, and literally ran down the steep slope till he disappeared from sight. To the astonishment of all, off came a second female from the nest, the male bird having secured another partner since the previous visit; and both birds were seen to get clear away. Ten minutes after Peder's head had disappeared over the edge of the rock, a shout from below announced that he had secured the eggs; and soon he was descried 300 feet below, at the base of the hill. The nest was a large structure formed of juniper-branches, and contained three well-marked eggs considerably incubated. The number of eggs varies from two to five. The nest is generally large, composed of branches of dwarf birch or juniper, and lined with thin wiry grass; but occasionally it is a mere hollow lined with grass and without any sticks.

At Quickiock, Wheelwright describes the nest as often being placed on a fell-ridge and often in a tree; and at Muonioniska, Wolley and his collectors found them only on Scotch firs, some being taken as early as the middle of May. This difference in the habits of the bird is no doubt accounted for by the nature of the country, this part of Lapland being on the borderland between the forest and the tundra. There are no cliffs; but the country is described as a wild tract of undulating ground, abounding with forest, river, lake, and swamp.

The eggs of this bird are subject to considerable variation in colour and size, some specimens being poorly marked, whilst others are very richly blotched with dark red, or clouded and mottled with pale brown. In some eggs the colouring is confined to a few large rich blotches of red; others are evenly spotted with colour, just as intense, over the entire surface. A more rare variety is delicately streaked and pencilled with a few irregular dashes of pale brown, something similar to a Kite's. Other varieties are seen in which all the colouring is distributed in pale purplish shell-markings, with, perhaps, a few streaks of rich brown. The handsomest type of egg is the clouded variety. They vary from 2·25 to 2·1 inch in length, and from 1·8 to 1·65 inch in breadth.

The general colour of an adult bird is buffish white, variegated with several shades of brown, most closely on the back and rump. The quills have the basal half white, terminal half blackish brown; a broad patch of brown on the belly; basal two thirds of tail white, remainder brown, narrowly tipped with buffish white. Legs feathered to the toes, fawn-colour, streaked with brown. Bill blackish horn, bluish at the base; irides brown; feet and cere yellow; claws black. The sexes only differ in size, the female being slightly the largest. Immature birds may always be distinguished from adults by having the brown markings on the lower parts longitudinal instead of transverse.

Genus BUTEO.

The genus *Buteo* was established by Cuvier in 1800, in his 'Leçons d'Anatomie comparée,' i. tab. 2. Previous to that date the Buzzards were included in the genus *Falco* of Linnæus. Cuvier did not designate any type; nor has any later writer in any subsequent subdivision of the genus done so. It is impossible to say what species was considered typical by Cuvier; but it is perfectly obvious that the Common Buzzard (the *F. buteo* of Linnæus) ought to have been so considered, and we cannot do wrong in so accepting it.

The Buzzards are very nearly allied to the Eagles, forming a connecting link between them and the Harriers and the Hawks. From the Eagles they may be distinguished by having no feathers on the lower half of the tarsus, which is scaled before and behind, a character they have in common with the Harriers and the Hawks. From the former they are distinguished by their thick tarsus (circumference about one third of length), and from the latter by their long wings and short tarsus (less than a fourth the length of the wing, and less than half the length of the first primary). In their habits the Buzzards very closely resemble the Eagles, being, as a rule, somewhat heavy in flight, rarely catching their food upon the wing. They feed upon reptiles, mice, and other small mammals, insects, and occasionally birds, which they catch when sitting. They build a moderate-sized nest of sticks &c., which is sometimes placed on trees, and sometimes on rocks. They lay from two to four eggs, greenish white or pure white in ground-colour, marked sparingly with reddish-brown and violet shell-markings. When held up to the light the shells of Buzzards' eggs look green. The Buzzards, of which there are twenty or more species, are almost cosmopolitan in their range, but are seldom found north of the Arctic circle. But one species is found in the British Islands.

BUTEO VULGARIS.

COMMON BUZZARD.

(Plate 5.)

Accipiter buteo, *Briss. Orn.* i. p. 406 (1760).
Falco buteo, *Linn. Syst. Nat.* i. p. 127 (1766).
Aquila glaucopis, *Merrem, Av. Rar.* p. 22, pl. vii. (1786).
Falco albus, *Daud. Traité,* ii. p. 155 (1800).
Buteo vulgaris, *Leach, Syst. Cat. M. & Birds Brit. Mus.* p. 10 (1816); **et auctorum plurimorum**—*Gray, Kaup, Schlegel, Strickland, Jerdon, Gould, Sundevall, Newton, Sharpe, Dresser,* &c.
Buteo mutans, *Vieill. N. Dict. d'Hist. Nat.* iv. p. 469 (1816).
Buteo fasciatus, *Vieill. Nouv. Dict.* iv. p. 474 (1816).
Buteo spiralis, *Forst. Syn. Cat. Br. B.* p. 44 (1817).
Falco pojana, *Savi, Nuov. Giorn. Pisa,* xxii. p. 68 (1822).
Buteo communis, *Less. Traité,* p. 78 (1831).
Buteo fuscus, *Macgill. Hist. Brit. B.* iii. p. 183 (1840).
Buteo cinereus, *Bp. Consp.* i. p. 18 (1850).
Buteo variabilis, *Bailly, Orn. Sav.* i. p. 127 (1853).

The Common Buzzard was formerly pretty generally distributed throughout Great Britain and Ireland, probably with the exception of the Outer Hebrides, the Orkneys, and Shetlands; but it is now confined to a few of the larger forests, principally of Scotland and Wales, and the sea-coasts where the rocks are lofty and precipitous.

The Buzzard varies so much in the colour of its plumage, and frequently approaches so closely to its nearest allies, that it is very difficult to define its exact range. It is impossible to draw a hard and fast line between *B. vulgaris, B. ferox, B. desertorum, B. japonicus,* and *B. plumipes.* Many ornithologists have attempted to do so; but no one has been able to discover a diagnosis which harmonizes with geographical distribution. The Buzzard is by no means an Arctic bird, and rarely, if ever, strays within the Arctic circle, only approaching it in the western limit of its range. In Scandinavia it is said to breed up to lat. 66°, at Archangel to 65°, and on the Urals to 59°; consequently there is no Arctic form of this bird. The southern limit of the breeding-range of the typical form of the Buzzard is the Mediterranean, the valley of the Danube, the northern shore of the Black Sea, and the lower valley of the Volga, not reaching so far south as the Caspian, but extending eastward to the Urals. In the northern portion of its range it is only a summer visitor; in the central portion a few remain during the winter; and in the southern portion of its range it is a resident, its numbers being increased in winter by migrants from the north. The Ural birds appear to winter in Turkestan. Its occurrence in Africa in winter is probably accidental. There are two extreme forms of the European Buzzard. One is deep blackish brown, with pale edges to a few of the feathers of the underparts. The other is pale brown on the upper parts, with white edges to each feather; whilst on the underparts the white edges have spread over the entire feather, except on a few feathers on the breast and flanks, where a little pale brown is left in the centre. Between these two extremes every intermediate form occurs.

East of the Ural Mountains lie the Barabinsky Steppes, where there is no forest, and consequently no Buzzards. But beyond the steppes the forest reappears, and with it the Buzzards. In the upper valley of the Yenesay, in the trans-Baikal country as far as the Stanowoi Mountains on the shores of the Sea of Okhotsk, and in Japan the Japanese Buzzard (*B. japonicus*) is found in summer, wintering in China, Burma, and India. This is a very near ally of our bird, said to differ from it in having the tarsus feathered for a slightly greater extent, and in varying from dark brown to rufous in general colour; but the former character is by no means constant, though it has suggested the name (*B. plumipes*) for the Indian bird, which some writers have considered distinct.

Besides the two northerly forms of the Common Buzzard, there are two tropical forms. The African Buzzard (*B. desertorum*) is, on an average, slightly smaller than its European representative, the length of wing varying from 13½ to 15¼ inches, whilst in our race it varies from 15 to 16½ inches. As might be expected in a tropical race, it is very rufous in colour; but it is subject to the same variations as our bird, and a small dark bird of our race is scarcely to be distinguished from a large dark bird of the African race. The range of the latter extends to the Azores, where it is a resident—to Tangiers, Algeria, and Tunis, where it is also found throughout the year—and to the plains of Northern Turkey and South Russia as far east as the Kirghis Steppes, where it is a common summer visitor, passing the Bosphorus in great numbers on migration and wintering in South Africa. The other tropical form is the Long-legged Buzzard (*B. ferox*), with the same variations from dark brown to rufous-brown which are found in its tropical ally; it is a larger bird, the wing varying from 16¼ to 19¼ inches in length. In Algeria and the Kirghis Steppes its range overlaps that of the African Buzzard; but it extends eastward through Egypt, Palestine, Asia Minor, Persia, and Turkestan to India. Both the rufous forms are remarkable for the way in which the bars on the tail become nearly obsolete in adult birds. All these forms are probably conspecific to a greater or less extent.

It is very unfortunate for the Common Buzzard that it looks so much like an Eagle. The consequence is that in England, where the preservation of game is conducted irrationally, the innocent Buzzard has almost become exterminated by the gamekeepers. In order to study its habits during the breeding-season it is necessary to visit the forests of North Germany, where it is still a common bird, by far the commonest bird of prey. The Prussian foresters are well educated, and understand the difference between destructive and harmless birds. The Buzzard breeds on the outskirts of the forests, whence it issues in search of food, and may often be seen perched on the bare hill-sides, waiting for mice and other small mammals, or may be observed crossing the open fields with somewhat heavy and indolent flight. It is equally common in dry as in swampy woods, and breeds in pine-forests as freely as in those of beech or oak. In the forests near Brunswick I found the nests mostly in beech and oak; but in Pomerania many were in Scotch firs, one in a birch, and one in an elm. Many Buzzards remain in North Germany during the winter; but most leave for warmer climes in September and October, returning to their breeding-grounds about the middle of March. The Buzzard builds a nest from one and a half to two feet in diameter, and, if it is in the fork of a tree, sometimes nearly as high. The foundation is of large twigs, finished at the top with slender twigs. It is very flat, the hollow in the middle containing the eggs about the size and depth of a soup-plate. The final lining is fresh green leaves, generally beech; but in one nest, although it was in a beech tree, the lining was green larch-twigs. This lining must be renewed from time to time. Out of eleven nests near Brunswick, five of which contained eggs, five young birds, and one three eggs and a young bird, all but one were lined with fresh leaves. The one that had no green lining was the last we examined, and contained three very large young birds. This was also the only nest containing young which did not also contain some food, and the only nest where we saw nothing of the parent birds; they were no doubt absent in search of food to satisfy the voracious appetites of their three children, and had probably no time to spare to renew the lining. What the object of this fresh lining of green leaves can be I do not know. We never found any birds in the larder. One nest contained a blindworm in two pieces, and two short-tailed field-mice. A second nest contained a frog and half a long-tailed field-mouse. A third contained no fewer than eleven short-tailed field-mice; whilst a fourth nest, containing three young, was supplied with six large short-tailed field-mice and seven smaller ones. A fifth nest, containing only one young bird, also contained a mole and a long-tailed field-mouse. The nests varied from 50 to 90 feet from the ground; but some, to which we did not attempt to climb, were higher. In Pomerania I saw several nests in Scotch firs, not more than 25 feet from the ground. My friend Dr. Holland, who has paid great attention to the birds of prey in Pomerania for many years, informs me that the Buzzard begins to lay about the middle of April (I took eggs, all highly incubated, near Brunswick, between the 4th and 17th of May), that the period of incubation lasts three weeks, and that the male relieves the female at her duties. He tells me that, besides small mammals, the Buzzard will eat grasshoppers and other insects, reptiles, and occasionally small birds, if it gets a chance of catching them sitting. The spines of the hedgehog have been found in the stomach of the Buzzard; and Dr. Holland also mentioned an instance of a female bird having been found dead on the nest with a live viper under her.

The Buzzard returns year after year to the same nest, but is said not to breed a second time the same year if the eggs are taken. When the eggs are much incubated she sits very close. Sometimes we could see the tail projecting beyond the edge of the nest, but were unable to drive the bird from her place by shouting, sometimes not even by hitting the trunk of the tree. Once or twice the sitting bird did not fly off until the climber was halfway up the tree. When she does take wing, she flies straight off and clears herself from the tops of the surrounding trees as soon as possible. She sits on the nest head to wind, and flies off also head to wind, but, when she has a clear course, generally soon wheels round, and keeps up at intervals a melancholy cry like *pe-e-i-o-oo*. The Buzzard is said to breed in its first spring, in immature plumage. As soon as the duty of feeding the young is nearly come to an end, which is late in May or early in June, the moulting-season comes on. First the wing- and tail-feathers are renewed, but slowly, only one or two at each side at a time, so as not to interfere much with its power of flight. During August and September the body-feathers are moulted.

Dixon met with this bird in the north of Scotland, and made the following note respecting its nesting-habits there:—"Far in the deepest solitudes of the deer-forests the Buzzard ofttimes builds its nest. Its cradle is usually placed in some dense hoary pine tree, the patriarch of the forest, and the one most difficult of access too. It is here, but sometimes also just on the borderland of the forests, that the Buzzard finds the solitude of his choice, the seclusion which he loves. Nothing breaks the silence here save the occasional cry of a Blackcock or the light tread of the mountain-hare as it hurries off at your approach. The scenery around is grand, befitting surroundings to such an abode. The distant mountains come out in bold outline against the clear morning sky; and the sunlight glistens brightly on the red bark of the pines around you. The nest is situated on a flat branch, some sixty feet from the ground. It is a large bulky structure, indeed almost flat, and made of sticks. In the cavity which contains the eggs are a few bits of wool and down, similar to what are often found in the Sparrow-Hawk's nest. Indeed the whole structure bears a very close resemblance to the nest of that bird; only it is situated further from the trunk of the tree, like the nest of the Heron. Since this nest was robbed, the pair of birds have commenced building another, choosing for their situation this time the face of an old ivy-covered cliff."

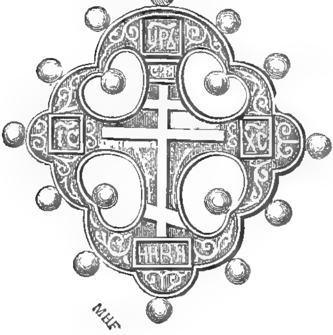
In some parts of South Wales the Buzzard breeds on the cliffs. Dr. Propert has kindly furnished me with particulars of eight nests, all built on the rocks overlooking the sea on the coast of St. Bride's Bay, in Pembrokeshire. They were taken in 1876 and the two following years; the earliest date was the 19th of April, and the latest the 9th of May. Two were on the cliffs of the mainland, near St. David's Head, and the other six on Ramsey Island. The rocks were almost perpendicular, and in four cases they were overhanging. The cliffs rise from three to four hundred feet above the sea. In every case the nests were almost inaccessible, and could only be reached by letting a boy down with a rope; and where the nests were under an overhanging rock, the eggs could only be secured with a net fastened to the end of a stick. One nest, a large one, was a slight hollow, with sticks carefully disposed around it. Another nest was under some thorn-bushes, and a third in a very damp place where water was trickling down. One nest contained four eggs, and six nests contained three eggs each. The eggs varied somewhat in size; and in one of the nests the third egg was abnormally small. Some clutches were much more handsomely coloured than others. In two cases the eggs were perfectly fresh; but in one taken on the 1st of May they were almost hatched. In the 'Ootheca Wolleyana' is also an interesting account of the nesting of the Buzzard on rocks in Sutherlandshire.

Three seems to be the usual number of eggs, sometimes only two, and not unfrequently four. They vary very much in size and colour, are rough in texture, and possess little or no gloss. Common Buzzards' eggs vary from milky blue to pale reddish white in ground-colour, blotched, streaked, spotted, or clouded with rich brown surface-spots and pale lilac shell-markings. Some specimens are most richly and handsomely marked, others more sparingly, whilst many are almost devoid of markings. Many specimens very closely resemble certain varieties of the Common Kite's, others the pale and spotless eggs of the Goshawk. A rather rare variety is finely streaked and scratched over the smaller half of the egg with pale brown, with one or two larger spots. In some the colour is confluent on the larger end, whilst in others the rich brown colouring-matter is covered with a thin coating of lime, giving the egg a beautiful delicate lilac-pink appearance. In form the Buzzard's eggs vary considerably, some specimens being almost round, others strictly oval, some elongated, and more rarely elliptical. In size they vary from $2\frac{1}{4}$ to 2 inches in length, and from 1·9 to 1·65 inch in breadth.

The peculiar motion of the Buzzard's flight has been noticed by the earliest writers on British birds, who speak of its rising in the air to a great elevation in a spiral course. So much did this motion on the Buzzard's part impress itself upon Forster, that he gave the bird the name of *spiralis*. In passing from place to place the Buzzard flies very slowly, and usually very low, just above the ground. Sometimes it may be seen sitting on the road-side, on a large stone or fence, from which it flaps slowly forward to secure, with unerring certainty, some mouse or other small mammal. At times the Buzzard flies at a great height, sailing slowly about the heavens in graceful swoops and curves, its broad wings and tail expanded to their fullest extent, the motion of the tail helping to guide the bird through space.

In the typical form of the Common Buzzard the tail is crossed with about ten pale bars, and has a slight pale tip; legs and toes yellow; claws black; beak bluish black; cere yellow; irides yellowish brown, dark hazel in the young.

Three other species belonging to the genus *Buteo* have been recorded as occurring in the British Islands. The Red-tailed Buzzard (*Buteo borealis*), a species inhabiting Eastern North America and the West Indies, is said to have been killed, in the autumn of 1860, in Nottinghamshire. Another American species, the Red-shouldered Buzzard (*Buteo lineatus*), is reported to have been killed in Invernessshire in 1863, and is recorded in 'The Ibis' for 1865 (p. 549). Lastly, the African Buzzard (*Buteo desertorum*), of which three examples are said to have been obtained: the first was killed at Everley, Wiltshire, in September 1864; the other two specimens were obtained in Northumberland—one near Newcastle in 1830, the other at Tynemouth in November 1870. There is no evidence to prove that these birds had not escaped from confinement; nor is it certain that the identification was correct.



Genus CIRCUS.

The genus *Circus* was established by Lacépède (Mém. Classe Sc. math.-phys. Inst. iii. p. 506) in the year 1801. Previous to that date the Harriers were included in the genus *Falco* of Linnæus. Lacépède did not indicate any type; but Bonaparte, who afterwards unnecessarily subdivided the genus, retained the Marsh-Harrier in his restricted genus *Circus*, and this bird may therefore be considered the type.

The Harriers are intermediate between the Buzzards and the Hawks, having the somewhat long wings and short tarsus of the former, and the long tail and slender tarsus of the latter, but agreeing with both in having the lower half of the tarsus scutellated both at the back and front.

This genus is almost cosmopolitan, and contains about twenty species, of which four are European, three of these breeding more or less commonly in the British Islands.

The food of the Harriers is composed of small mammals, birds, reptiles, fish, insects, and birds' eggs. Their nests are built on the ground; and their eggs, from three to five in number, are bluish white, generally spotless, but in some cases marked with pale brown; when held up to the light the bluish-green colour which underlies the white ground-colour is always observable.

CIRCUS ÆRUGINOSUS.

MARSH-HARRIER.

(PLATE 6.)

Accipiter circus palustris, *Briss. Orn.* i. p. 401 (1760).
Accipiter circus rufus, *Briss. Orn.* i. p. 404 (1760).
Falco æruginosus, *Linn. Syst. Nat.* i. p. 130 (1766); **et auctorum plurimorum**—(*Gray*), (*Bonaparte*), (*Jerdon*), (*Newton*), (*Sundevall*), (*Sharpe*), &c.
Falco rufus, *Gmel. Syst. Nat.* i. p. 266 (1788).
Falco arundinaceus, *Bechst. Orn. Taschenb.* p. 23 (1802).
Circus æruginosus (*Linn.*), *Savign. Syst. Ois. de l'Egypte*, p. 30 (1810).
Circus rufus (*Gmel.*), *Savign. tom. cit.* p. 31 (1810).
Accipiter æruginosus (*Linn.*), *Koch, Syst. baier. Zool.* i. p. 119 (1816).
Accipiter circus, *Pall. Zoogr. Rosso-As.* i. p. 362 (1826).
Buteo æruginosus (*Linn.*), *Flem. Brit. An.* p. 55 (1828).
Circus arundinaceus (*Bechst.*), *Brehm, Vög. Deutschl.* p. 91 (1831).
Buteo rufus (*Gmel.*), *Jenyns, Brit. Vert.* p. 88 (1835).
Circus umbrinus, *Heugl. Syst. Uebers. Vög. N.O.-Afr.* p. 12 (1856).

The Marsh-Harrier has not yet been quite exterminated from the British Islands. It still breeds in the Norfolk broads and in Devonshire, and occasionally escapes the gamekeeper's gun in other parts of the kingdom. In Scotland it is still more local, being chiefly found in the central counties, Aberdeenshire, and the Western Isles. In Ireland it was formerly very abundant, but is now said to have become very local.

It breeds in swampy districts throughout Europe south of the Baltic, occurring rarely in South Sweden, and only visiting Norway accidentally. It winters in Africa north of the equator, occasionally wandering as far south as the Transvaal. In Greece, Palestine, Persia, and also in Algeria and Tangiers the winter range overlaps that of the breeding-season, and the bird is to be found all the year round. Eastwards it breeds in the upper valley of the Obb and in Turkestan, and winters in India and Ceylon. It is said occasionally to breed in India. No Marsh-Harrier has yet been obtained from the valley of the Yenesay; but from Lake Baikal eastwards to Japan and China an allied form occurs, *C. spilonotus*, with the whole of the underparts pure white, except the throat and breast, which are longitudinally streaked with black. The female differs from the female of our bird by having the tail transversely barred. If the latter character be reliable, then either our bird turns up again in Japan and China or occasionally wanders there, as females without bars on the tail have occurred in both those countries. The more probable explanation is that old females of the eastern form lose the bars on the tail. This eastern representative of the Marsh-Harrier breeds in Siberia from Lake

Baikal eastwards, and probably also in Japan and North China. It winters in South China, the Philippine Islands, and the Malay Peninsula, and would seem accidentally to wander into Europe. It is evidently a nearly adult male of this species that Dresser has figured in his 'Birds of Europe' as the adult male Marsh-Harrier. The example from which this figure was drawn was obtained by Messrs. Danford and Harvie-Brown in Transylvania, whither it had probably strayed from Lake Baikal—birds from this district having apparently a great propensity to turn up unexpectedly in Heligoland and various parts of Europe. It is probable that the two species interbreed, as intermediate forms, with the thighs white streaked longitudinally with chestnut, occur both in Europe and North India. Other nearly allied species occur in South Africa, Australia, and South America.

The large fen-districts in the eastern counties of England, which have within the past few centuries been drained, and their willows and rushes obliged to give place to corn and pasture, tell most plainly the history of the Marsh-Harrier's disappearance. In the days when this low-lying country was a reed-covered tract the Marsh-Harrier, in common with the Stork and the Avocet and many other birds now of extreme rarity, was a well-known bird. The Marsh-Harrier is never seen in the mountainous districts. It is a bird of the plains; and its haunts are almost invariably low swampy districts, the banks of rivers and lakes, inundated fields, and wet meadow-land. It is especially fond of marshes, but is never seen in woods. The Marsh-Harrier is usually seen passing slowly over its swampy haunts a few feet from the earth, quartering the ground much as a well-trained dog searching for game. Its flight is somewhat slow and laboured, performed with measured beats of the wings, varied by gliding motions as it surveys the ground below. It will beat over its hunting-ground, returning backwards and forwards as if diligently searching every spot likely to contain its prey. Now and then it is seen to drop somewhat slowly to the earth to secure a frog or mole, which it will either eat at once or convey to some distance. The Marsh-Harrier is said seldom to perch on trees; but I have repeatedly seen it so doing, as well as sitting on large stones and fences, and sometimes on the ground. It is, however, a bird that is rarely seen at rest, mostly on the wing, and is said to roost upon the ground amongst reeds. Although the Marsh-Harrier possesses great power of flight, still it is either incapable of taking birds upon the wing or never chooses to exert its power in this respect. It will take a sitting bird which it has surprised, or it will strike the wounded and weakly birds and animals, but it never flies them down like a Falcon or a Hawk. Birds and animals that can be seized upon the ground, together with birds' eggs and insects, form the Marsh-Harrier's favourite fare. As a robber of birds' eggs the Marsh-Harrier seems to be too well known;

nests are often found robbed of their eggs in the vicinity of its own; and Dr. Holland informs me that he once found Curlews' egg-shells in the nest itself. This bird hunts chiefly in the morning and evening, and is said occasionally to eat a young hare or rabbit which it has been able to surprise. It also takes fish from the shallows, and young nestling birds. Jerdon mentions that it will carry off wounded Snipe and Teal, and that it often follows the sportsman.

The note of the female Marsh-Harrier, according to Naumann, is a high and clear *pitz-pitz,* varied very frequently by a long-drawn *peep-peep.* The male bird, on the contrary, especially in the breeding-season, utters several pleasant notes, which resemble the word *koi* or *kai—not* "keew," as erroneously given by Dresser in an unacknowledged free translation from the same authority.

The breeding-season of the Marsh-Harrier varies slightly according to climate. In Gibraltar, where many of these birds breed, they begin to lay by the end of March; but in Denmark and North Germany the eggs are seldom laid before the second or third week in May. During the laying-season the birds often soar to a great height, uttering a wailing cry; and when the hen is sitting the cock bird soars above the nest, as is the case with many other raptorial birds. Irby mentions that in Gibraltar as many as twenty nests have been found within 300 yards of each other; so that it would seem the bird is partially a social one. The situation of the nest varies but little: though Montagu says he has found it in the fork of a large tree, it is usually built upon the ground amongst the reeds, or beneath the shelter of a bush, or on a grassy tussock in the reeds.

At Riddagshausen, near Brunswick, on the estate of my friend Oberamtmann Nehrkorn, on the 10th of last May, I took a nest of this bird. It was in a large extent of swampy ground, on the margin of one of the numerous lakes and ponds where the reeds had not been mown down. They are too thick on the ground for a flat-bottomed boat to be forced through; but the water comes above the knees as one wades amongst them. In the middle of this bed of reeds the Marsh-Harrier had built. The nest was very large, the outside composed of two thirds reeds and one third small branches of trees; and the extreme diameter was at least four feet; but the outside was very loose and straggling. It stood two feet above the surface of the water; and one could see underneath the nest by stooping down. The inside of the nest was neat and compact, measuring less than a foot across, and warmly lined with dry flag-leaves and dry grass. It contained four eggs of the Marsh-Harrier and one of the Coot, which had doubtless been taken thither to feed the sitting bird. The bird flew off as we approached the nest; and after we had left it we saw her return with a bunch of sticks in her claws. Nehrkorn says they keep on adding to the sides of the nest as they continue sitting, so that when the young are hatched they may not fall out of the nest into the water. It is, however, extremely probable that this adding to the nest is but a precaution against floods, just as is the case with the Swans and the Moorhens. Three pairs of Marsh-Harriers used to breed regularly on this lake; but they made such havoc amongst the young Moorhens and the young Ducks that Nehrkorn was obliged to give over protecting them. Within forty yards of the Harrier's nest, curiously enough, was a Duck's nest containing five eggs. The eggs of the Marsh-Harrier are from three to six in number, roundish in form and rough in texture, the short eggs being usually the roundest. They are very pale bluish green (sometimes almost white), very faintly marked with pale brown, or (most often) spotless, or covered with nest-stains like the eggs of Grebes. In size they vary from 2·1 to 1·8 inch in length and from 1·6 to 1·15 inch in breadth. The eggs of the Marsh-Harrier are very small proportionally for the size of the bird. The female bird alone incubates the eggs, according to Dr. Holland; and she is fed assiduously by the male. The young birds are fed by both parents; and at this time Dr. Holland informs me that he has known Marsh-Harriers, in one day, bring to their nest six Partridges, four hares, and two leverets. If continually disturbed, the old birds become very wary, and will then drop the food into the nest from the air above. It is also said that the old birds teach their young to hunt by dropping food for them to catch. According to Naumann the Marsh-Harrier is extremely sensitive to cold, and leaves very early in his neighbourhood.

The male Marsh-Harrier has the head and nape white, tinged with rufous and streaked with dark brown; rest of the upper parts dark reddish brown with lighter margins; primaries brownish black; secondaries and tail ashy grey; lower parts, including the thighs, rich chestnut-brown. Beak bluish black; cere, irides, legs, and toes yellow; claws black. The adult female resembles the male, but is slightly larger, and she has, like the young birds of both sexes, the irides yellowish hazel. Birds of the year are uniform chocolate-brown, each feather tipped with lighter brown, except the crown of the head and throat, which are creamy buff.

CIRCUS CYANEUS.

HEN-HARRIER.

(Plate 6.)

Accipiter falco torquatus (♀), *Briss. Orn.* i. p. 345 (1760).

Falco cyaneus, *Linn. Syst. Nat.* i. p. 126 (1766); **et auctorum plurimorum**—*Temminck*, *Yarrell*, (*Gould*), (*Gray*), (*Newton*), (*Sharpe*), &c.

Aquila variabilis, *Schrank, Fauna Boica*, i. p. 108 (1798).

Circus gallinarius, *Savign. Ois. d'Egypte*, p. 31 (1810).

Pygargus dispar, *Koch, Syst. baier. Zool.* p. 128 (1816).

Circus ægithus, *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* pp. 9, 10 (1816).

Falco strigiceps, *Nilss. Orn. Suec.* i. p. 21 (1817).

Accipiter variabilis (*Schr.*), *Pall. Zoogr. Rosso-As.* i. p. 364 (1826).

The Hen-Harrier was formerly a regular summer visitor to the British Islands, a few even remaining through the winter, and it has only very recently been exterminated in the breeding-season from most parts of England. Now it is principally seen on the autumn migration, but is still said to breed occasionally in some of the wilder districts, such as Devonshire, Cornwall, and the Lake district. In Wales, the Highlands of Scotland, the Hebrides, the Orkneys, and in the mountainous parts of Ireland it still breeds, although in decreasing numbers. It has not been recorded from the Faroes; but in the Shetland Islands, where it formerly bred, it has become only an autumn visitor.

On the continent it is a summer visitor to Holland, Jutland, Northern Norway, Poland, Northern and Central Russia, and North Turkestan, the whole of Siberia, and the north island of Japan. Its breeding-range extends north of the Arctic circle, but not quite so far as the limit of forest-growth. In Spain, France, Germany, Southern Sweden, Italy, Turkey, South Russia, Palestine, and Southern Turkestan it is principally known as passing through on the spring and autumn migration. In all these countries a few remain during the summer to breed, and a few are found during winter; but these latter are probably visitants from further north, so that the bird cannot anywhere be strictly called a resident. It is found in winter only in Northern Africa as far south as Abyssinia, Sardinia, Greece, Asia Minor, Northern India, Mongolia, China, and the central island of Japan.

On the American continent, from the Arctic circle to Panama, a very nearly allied species, which many writers consider only subspecifically distinct from our bird, occurs. This species, *C. hudsonius*, differs in having the lower parts striped with rufous, similar to Montagu's Harrier. A species having the underparts still more streaked, *C. cinereus*, is found in the southern half of South America. Another very near ally of this species occurs in the eastern hemisphere, having very nearly the same range as Montagu's Harrier, but has not yet been recorded from the

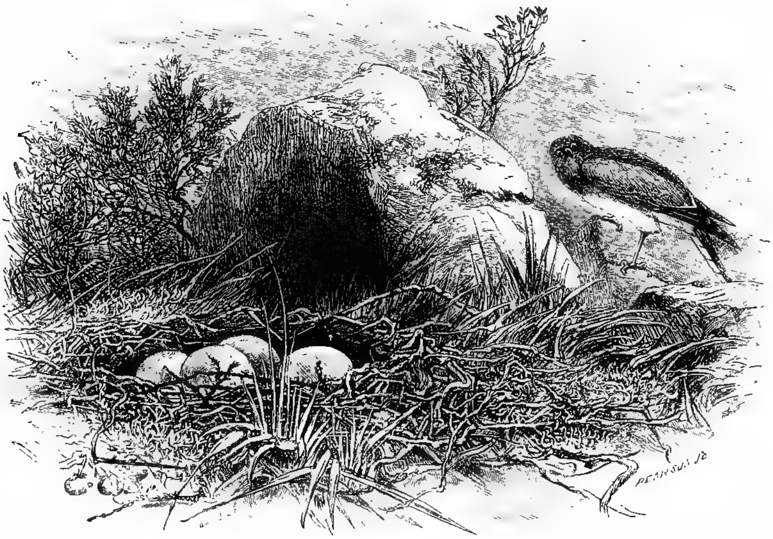
British Islands, viz. the Pallid Harrier, *C. swainsoni.* The adult male is easily distinguished by its barred upper tail-coverts and the female and immature bird by the shape of the fifth primaries. In *C. cyaneus* the outer web is notched; in *C. swainsoni* and *C. cineraceus* it is plain.

The Hen-Harrier (a more appropriate name for which would be the Mountain-Harrier) has a much more northern range than the other European and Asiatic species; I have often seen it on the tundras of North Russia and Siberia, more than a hundred miles beyond the Arctic circle. In its habits it differs little from the other European Harriers, but is very partial to hill-sides, hunting them systematically with great perseverance like a pointer, returning backwards and forwards over the same ground. I have never seen them soar very high. They fly remarkably steadily, with slow regular beats of the wings, like a Heron, turning sharply with a twist of the tail like a Kite, now and then hovering like a Kestrel, and anon skimming over the ground like a Grouse. In the valley of the Petchora we used to see them resting on a manure-heap or flying over the cultivated ground near the town; and in Siberia I have shot down at them from the top of the river-bank as they beat up and down stream on the ground between the frozen river and the forest, in search of Snow-Buntings. The Hen-Harrier is a migratory bird. According to Goebel they pass through South-west Russia during the last half of March, one or two occasionally remaining to breed. At Kazan they arrive in the middle of April, and breed in some numbers. Bogdanow says they are occasionally seen in the forests, but soon after their arrival hunt the plains and the steppes with great regularity. In the valleys both of the Petchora and the Yenesay we did not see them until the last week of May; but it must be remembered that we were on the Arctic circle. On the autumn migration they pass through Germany during the month of September. I have never found the nest of the Hen-Harrier; but it is generally reported to be a late breeder. Harvie-Brown gives the 24th of May as the date when the first egg was laid in a nest which he found in Sutherlandshire; and Goebel found two nests, in which the full number of eggs was not laid, in the middle of June in South-west Russia. The site usually chosen is a dry moor or amongst the heather; and it has often been found in a cornfield. The size and material used vary with the locality. Harvie-Brown describes one on the bare hill-side as merely consisting of a few loosely arranged heather-stems with a shallow depression in the centre lined with wiry dry grass broken into small pieces. Another, placed in deep heather, was more than a foot high, and composed of stout rank stems and roots of heather. Goebel found one nest in the middle of a cornfield, and another concealed in the long grass on a dried-up marsh. He says they were two feet and a half wide and nearly a foot high, made of dry straw and plants, very flat, and lined with a few feathers. It is said that the female alone sits on the nest and is fed by the male. The number of eggs is usually five; but four and six are often found.

The Hen-Harrier is a bolder bird in the pursuit of its food than the other two British Harriers, and undoubtedly often chases its prey on the wing. It catches small birds, mice, frogs, but does not disdain to make a meal off the eggs of its neighbours when it has the opportunity. The gracefulness of its flight and the ease with which it can skim over the brow of a hill make it a favourite with the ornithologist, in spite of an occasional young grouse that may fall a victim to its prowess.

The eggs of the Hen-Harrier are bluish white, like those of the other two British Harriers, and are on an average intermediate in size between those of the Marsh and Montagu's Harriers. They vary in length from 1·8 to 1·65 inch and in breadth from 1·5 to 1·4 inch. It is unfortunately impossible to distinguish them from exceptionally small eggs of the Marsh-Harrier, or from very large eggs of Montagu's Harrier.

The adult male Hen-Harrier is a very beautiful bird, of a delicate pale slate-grey colour, with black primaries and with the upper tail-coverts and the whole of the underparts below the centre of the breast pure white. Cere, irides, and legs yellow; bill bluish black, claws black. The female, which is a slightly larger bird, has the general colour brown, paler below, and streaked with reddish brown; the upper tail-coverts are white, faintly marked with rufous; tail dark brown, broadly barred with buffish brown, and tipped with pale buff.



HEN-HARRIER'S NEST.

CIRCUS CINERACEUS.

MONTAGU'S HARRIER.

(PLATE 6.)

Accipiter falco torquatus (♂), *Briss. Orn.* i. p. 345 (1760).
Falco pygargus, *Linn. Syst. Nat.* i. p. 126 (1766).
Falco cineraceus, *Mont. Orn. Dict.* i. (1802); **et auctorum plurimorum**—*Temminck, Naumann, (Cuvier), (Gould), (Newton), (Dresser)*, &c.
Falco hyemalis, *Gmel. apud Penn. Brit. Zool.* i. p. 243 (1812).
Circus cinerarius (*Mont.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 9 (1816).
Circus ater, *Vieill. N. Dict. d'Hist. Nat.* iv. p. 459 (1816).
Circus montagui, *Vieill. N. Dict. d'Hist. Nat.* xxxi. p. 411 (1819).
Falco cineraceus (*Mont.*), *Temm. Man. d'Orn.* i. p. 76 (1820).
Circus cinerascens, *Steph. Shaw's Gen. Zool.* xiii. pt. ii. p. 41 (1826).
Buteo cineraceus (*Mont.*), *Flem. Brit. An.* p. 55 (1828).
Circus cineraceus (*Mont.*), *Cuv. Règne An.* i. p. 338 (1829).
Circus pratorum, *Brehm, Vög. Deutschl.* p. 95 (1831).
Falco cinerascens (*Steph.*), *Barb. Rev. Zool.* 1838, p. 221.
Strigiceps cineraceus (*Mont.*), *Bp. Comp. List B. Eur. & N. Amer.* p. 5 (1838).
Circus nipalensis, *Hodgs. Gray's Zool. Misc.* p. 81 (1844).
Strigiceps cinerascens (*Steph.*), *Bp. Consp.* i. p. 33 (1850).
Circus pygargus * (*Linn.*), *Sharpe, Cat. B. Brit. Mus.* i. p. 64 (1874).

Though formerly a resident in Great Britain, Montagu's Harrier is now only an accidental visitor, occasionally breeding where it is left unmolested. It is still rarer in Scotland, and in Ireland has only twice been obtained.

In France, the Netherlands, Germany, Poland, Central and Southern Russia, Turkestan, and South-western Siberia, as far east as Krasnoyarsk, it is a summer visitant. In South Russia a considerable number remain during the winter; in Greece it is only found during the winter; and in Italy it is chiefly found at that season; whilst in Spain it appears to be a resident. It passes through North Africa on migration; but a few are found there all the year round. Its chief winter-quarters are the whole of South Africa from the Cape as far north as Abyssinia. The Siberian and Turkestan birds appear to winter in India, Ceylon, and Burma†.

Montagu's Harrier is a partial resident in our islands like the Marsh and Hen-Harriers, but is most frequently seen in summer. Like the Marsh-Harrier, it is never seen in the mountains, and hardly ever in the forests; but, unlike that bird, it appears to prefer a dry moor to a swamp, and a cornfield to a reed-bed. It seeks its food in true Harrier style, quartering the ground regularly, beating up and down the fields in search of grasshoppers, lizards, mice, and other small prey. Now and then it secures a small bird which it has surprised before it had time to take wing, and occasionally it pays a visit to some neighbouring marsh to pick up a frog or small mammal. Its long and pointed wings give an especial gracefulness to its flight; now it darts rapidly with half-closed wings, now it makes a sudden turn with one wing elevated, and now it sails over the surface of the ground with motionless outspread wings; but with all its apparent power of flight it seldom if ever pursues small birds if they attempt to escape. Montagu's Harrier has also the habit of sailing in wide circles, like many other birds of prey. Mr. Howard Saunders describes the female, which he put off a nest in the Isle of Wight, as flying away in repeated and gradually widening circles. The same feature was remarked on the return to the nest: the wide circles gradually narrowed; and the wings were suddenly closed as she swept over the nest and dropped upon it.

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* It is much to be regretted that Sharpe should have raked up a deservedly forgotten name for this bird; but, so long as the law of priority continues in force, uniformity of nomenclature can never be attained.

† It is a pity that Dresser, Sharpe, and Newton should have copied Swinhoe's error in recording this species from the Yang-tsze kiang, which he himself corrects ('Ibis,' 1874, p. 268).

In Germany Montagu's Harrier is a somewhat late breeder. The only time I have taken the nest was on the 23rd of last May. The eggs were quite fresh. The nest is very difficult to find. Saunders's nest above referred to was in a small clearing not two yards across, amongst the gorse on the open heath, and was a mere hollow in the ground lined with dry grass, with an outside border of heather twigs. The nest I took was a few miles out of Halberstadt, in the middle of the great prairie lying north of the Hartz Mountains. We were a party of four—our host Oberamtmann Ferdinand Heine, Dr. Blasius of Brunswick, my son, and myself. We were all in very high spirits, "coming thro' the rye" with three Great Bustard's eggs which we had just taken. Suddenly we observed a pair of Montagu's Harriers flying over the corn, crying and toying with each other almost like Terns. In this district of enormous farms and high farming, the ground is very fertile, and the rye stood more than five feet high in a field which could not be much less than a hundred acres in extent. It seemed like looking for a needle in a haystack; but our host and guide told us that several pairs of Harriers bred annually on his farm; so we walked down each side of the rye, one of us following a narrow path up the centre. We saw at different times five or six birds, one pair especially seeming to show some anxiety at our presence. Finally one of the birds dropped somewhat suddenly into the waving corn Dr. Blasius undertook to stalk her up, but, when she rose, missed her with both barrels. We were, however, delighted to find that she had risen from her nest containing four fresh eggs. There was no hole whatever in the ground; the rye had only been trampled down, and a slight but somewhat neat nest made of corn-stalks lined with a little dry straw. The nest was rather more than nine inches in diameter and about two inches and a half deep in the middle. The discharge of the two barrels caused a Mallard to rise from her nest in the rye about five and twenty yards off, and nearly a mile from any water.

Heine told us that Montagu's Harriers are very destructive to young hares and partridges, but frogs, lizards, mice, moles, and grasshoppers form its principal food. It is also fond of eggs. In Germany it arrives early in March, and leaves in October.

The number of eggs varies from four to six. They may be readily distinguished from the eggs of the other British Harriers by their decidedly smaller size. The largest egg in my collection measures 1·75 by 1·3 inch, whilst the smallest is only 1·5 by 1·25 inch. Very frequently the shape of the egg is much rounder. One from the Halberstadt nest measures 1·65 by 1·4 inch. The surface of the eggs is fine-grained, but not glossy, of an unspotted greenish white. The example figured is an exceptional variety, with pale reddish-brown spots, from the Volga.

The adult male of Montagu's Harrier is a pale slate-grey bird, with black primaries and a black bar across the secondaries. The inner web of the outer tail-feathers is barred with reddish brown and white. The underparts below the breast are white, with longitudinal streaks of reddish brown on the axillaries and thighs. Cere, irides, legs, and feet yellow; claws black; bill bluish black. Varieties occasionally occur which are uniform dark brown all over. The females and immature males, as well as the adult male, may be distinguished from the near allies of this species, especially from *C. swainsoni*, by having the notch in the inner web of the first primary and in the outer web of the second primary an inch beyond the tip of the primary-coverts instead of being nearly or quite hidden by them.

The two birds which approach nearest to Montagu's Harrier in general appearance, in consequence of having the lower portion of the underparts streaked with rufous, are the two American species, *C. cinereus* and *C. hudsonius*. These birds, however, are forms of the Hen-Harrier, and have, like that bird and the Marsh-Harrier, the outer web of the fifth primary notched, which is not the case with *C. cineraceus* and *C. swainsoni*.

* * *

Genus ACCIPITER.

The genus *Accipiter* was established by Brisson in 1760, in his 'Ornithologie,' i. p. 414, and is additional to the genus *Falco* of Linnæus, which also includes the genus *Aquila* of Brisson. The type of this genus, the *Accipiter accipiter* of Brisson, is the Sparrow-Hawk.

The Hawks may be distinguished from most other British genera of birds of prey by having the lower half of the tarsus covered, both at the front and at the back, by broad transverse oblong scales (which in old birds of the Sparrow-Hawks almost disappear)*. The only other genera of British birds of prey possessing these characters are the Buzzards and the Harriers. From both these the Hawks are readily distinguished by their long legs, the tarsus being one fourth, or more than one fourth, the length of the wing, and more than half the length of the first primary, and nearly as long as the tibia.

Three species of this genus are found in the British Islands—two as very accidental stragglers, the other as a common resident. The Hawks are cosmopolitan in their distribution, and number between fifty and sixty species.

The Hawks are birds moderate in size, and elegant and slender in form. Their wings are short and rounded, the tail long. They are birds of great courage, and never feed on carrion. Their food is birds, small mammals, and insects. They build large nests, made of sticks, in trees or on rocks, and lay from three to seven eggs, varying from pale spotless blue to blue richly spotted and blotched with reddish brown.

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* Ornithologists seem to have a fatality for making petty blunders. Yarrell, in his generic characters of *Astur*, says "the tarsi covered in front with broad scales," of *Accipiter* "legs smooth," and of *Circus* "tarsus naked." Newton copies these characters word for word in his new edition. Dresser says of *Circus* "tarsus smooth," of *Astur* "tarsus scutellate," and of *Accipiter* "tarsus non-scutellate." Sharpe does not mention the front of the tarsus of either of these genera, but separates *Circus*, in consequence of his erroneous belief that in this genus the hinder aspect of the tarsus is reticulate, from *Astur* and *Accipiter*, in which he says it is scaled. After a careful examination of numerous examples of Hawks and Harriers, I am unable to find any generic characters to separate the Hawks from the Goshawks. It appears to me that in both the Hawks, including the Goshawks and the Harriers, the upper part of the tarsus is feathered in front and reticulated behind, the lower part scutellated both in front and behind, and the sides reticulated from top to bottom. The Sparrow-Hawks, however, appear to lose these characters with age. They are very conspicuous in young birds; but in old ones the scales coalesce and the unfeathered part of the tarsus becomes smooth.

ACCIPITER NISUS.

SPARROW-HAWK.

(Plate 4.)

Accipiter accipiter, *Briss. Orn.* i. p. 310 (1760).
Falco nisus, *Linn. Syst. Nat.* i. p. 130 (1766); **et auctorum plurimorum**—*Naumann, Yarrell, (Pallas), (Gray), (Newton), (Sharpe),* &c.
Dædalion fringillarius, *Sav. Ois. d'Egypte*, p. 34 (1810).
Ierax fringillarius (*Sav.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 10 (1816).
Sparvius nisus (*Linn.*), *Vieill. N. Dict. d'Hist. Nat.* x. p. 319 (1817).
Accipiter fringillarius (*Sav.*), *Vig. Zool. Journ.* i. p. 338 (1824).
Accipiter nisus (*Linn.*), *Pall. Zoogr. Rosso-As.* i. p. 370 (1826).
Buteo nisus (*Linn.*), *Flem. Brit. An.* i. p. 55 (1828).
Astur nisus (*Linn.*), *Cuv. Règne An.* i. p. 333 (1829).
Nisus communis, *Less. Traité d'Orn.* p. 58 (1831).
Falco nisosimilis, *Tickell, Journ. As. Soc. Beng.* ii. p. 571 (1833).
Accipiter nisosimilis (*Tick.*), *Blyth, Journ. As. Soc. Beng.* xii. p. 311 (1843).
Astur major, *Degl. Orn. Eur.* i. p. 86 (1849, *ex Bekker*).
Nisus fringillarius (*Sav.*), *Kaup, Contr. Orn.* 1850, p. 64.
Nisus major (*Degl.*), *Jaub. Mots. Eur. Orn.* p. 29 (1851).

This handsome little species is the commonest and at the same time most extensively distributed of our native diurnal birds of prey. A Goshawk in miniature, elegant in form, agile and graceful in movement, the Sparrow-Hawk is an interesting ornament to the woods and fields; yet, from its boldness and destructive habits, but little favour is shown to it, and the game-preservers and poultry-keepers wage an incessant war of extermination against it. Throughout the whole of Great Britain and Ireland it is a common species in all well-wooded and cultivated localities. In the wild and comparatively treeless districts of Ireland, the west of Scotland, the Hebrides, the north of Scotland, and the Orkney and Shetland Islands the Sparrow-Hawk becomes much rarer, and in many of these localities, notably in Shetland, it is only known as a summer visitor. In England and Wales and the Channel Islands it is a resident and widely distributed bird, very common in all the game-coverts, woodlands, and Partridge-grounds, up to the suburbs of our most populous cities; but in many districts the incessant persecution to which it is subject has sensibly decreased its numbers.

The Sparrow-Hawk is found commonly throughout Europe up to the limit of forest-growth, about lat. 69°. In the northern limits of its range it is a migratory species, wintering in South Europe and North-east Africa, being very common in Egypt, Kordofan, and Sennaar. It breeds in Algeria, according to Loche, and also in the Canaries. In Asia it extends across the continent up to the Arctic circle, where I shot it both in the valley of the Petchora and that of the Yenesay; and Middendorff found it common on the Stanavoi Mountains, near the Pacific coast. It is found in Japan and China, in the latter country at least as far south as Canton; occurring throughout India in the cold season, a few birds breeding in the wooded valleys of the Himalayas.

The Sparrow-Hawk does not vary very much. Western examples, especially those from the British Islands and the Canaries, are a little darker and browner than those from the east. In the Himalayas a resident semi-tropical race appears, *A. melanoschistus*, a decidedly darker bird, especially on the head, and apparently rather more boldly spotted in the young in first plumage. In all probability this local race is only subspecifically distinct. Nearly allied but perfectly distinct species to the Sparrow-Hawk are found both in the Old and New Worlds.

From the nature of his food, the Sparrow-Hawk is seldom found in the wildest districts; there his place is taken by the Merlin. His haunt is the lowland woods and coppices or the fir-clumps on the borders of the moorlands—the rich well-cultivated lands on which game abounds, interspersed with woods and plantations: this is the Sparrow-Hawk's favourite home, where the food of his choice is found in great abundance. Although he frequently takes his station on the ground, or more often on a tree or fence, or on a stone wall or rock-ledge, using these situations as points of observation, the air is his province, and his flight in some respects stands almost unrivalled amongst birds. When seeking his food he flies down the wood-side, silently and swiftly gliding along just above the ground. If he sees you as he passes, with incredible speed he swerves into the cover, threading his way amongst the tangled network of branches gracefully and unharmed, to emerge a little distance further down and pursue his search as before. Often he will tarry for a moment above a clump of wild roses or brambles: mayhap a Robin is there; but he hops into cover in time to cheat his enemy. Onwards again flies the Sparrow-Hawk, now bounding over a fence, now gliding rapidly down the side of the cover, shooting and turning from side to side, or ever and anon rising in a beautiful curve over a hedge, scanning its further side, then back again. Perhaps a Thrush is started, and the relentless Hawk pursues it; but the Thrush is often too quick, or the Hawk mayhap is not hungry; for it gains a thick bush and its pursuer passes on, to sweep lightly upwards and perch on some decaying ivy-grown stump, standing erect and motionless, surveying the ground around him. Again he takes the air, leisurely at first, but with a quick swerve to the left, descending as he goes, he strikes a small bird, sitting quite unconscious of danger on a topmost twig, and bears it off in an instant into the wood from which he emerged but a short half-hour before. The amazing swiftness with which the Sparrow-

Hawk takes its prey, and the dexterity with which it threads its way through the branches at its fullest speed, are quite beyond the powers of written description; they must be witnessed to be fully appreciated. How often does the rush of its wings disturb your reverie, as you are, mayhap, watching some little chorister a few yards away! and before you have time for thought, the little creature in whom you were so interested is quivering in death-agony in the talons of this warrior bird. Your presence seems totally disregarded, and the Hawk appears only to see its intended victim. But its swoop is not always attended with success; and probably far more birds escape than are taken when the chase is a prolonged one. Dixon has, amongst many other notes, one to the effect that he was on one occasion observing a Robin engaged in song, when a Sparrow-Hawk struck at it, but missed its intended victim, which at once took refuge with loud cries of alarm in the densest part of the thicket. It may be that the sudden sight of man disconcerted the Hawk, and caused it to miss its prey. On another occasion he witnessed one of these Hawks pursue a Blue Titmouse for fully fifty yards up a fence; when the little creature, calling loudly all the time, at last managed to gain the shelter of a thick bush. In this instance, however, the Hawk perched near at hand, and appeared to be waiting for its quarry to again come forth into the open, until it was driven reluctantly away by an incautious movement on the part of its observers. The moment a bird is pursued it endeavours to seek safety in some dense cover which the Hawk cannot penetrate, and which no amount of fluttering on the part of the Hawk will cause it to quit when once safely reached. Numerous, indeed, are the instances on record of this bird's boldness and rapacity, it being almost impossible to read any account of this species without coming across some fresh instance of its daring.

A favourite place to find the Sparrow-Hawk in the evening is in the stack-yards, especially in winter, when so many birds are congregated there in search of a scanty sustenance. The Chaffinch is, perhaps, the first bird to give notice of his approach; for it is one of the wariest of birds, and never fails to give the alarm the instant danger threatens. The Sparrows clustering so thickly on the corn-stacks, seek the cover of the neighbouring thorn-bushes; and the Buntings and Greenfinches, busy near the barn-door, fly upwards into the tall trees or perch on the walls, while the Robin utters his sharp "chic" and disappears under the evergreens. Between the stacks their enemy comes gliding like a shadow; their twitterings increase; and before one has time for thought, he clutches one of the terrified little creatures and is off as quickly as he came. All is now confusion for a moment; but the alarm soon dies away, and the birds are engaged once more in feeding, until his approach again sends terror through their ranks and renews their noisy fears. The Sparrow-Hawk always strikes its prey with the claws; and the death-stroke is given by them alone.

In wandering through the depths of the woods or the closest thickets, you will sometimes notice a heap of feathers; these are the remnants of the Sparrow-Hawk's meal. Search closer and you will probably find portions of the skull and entrails of the victim; and by your knowledge of the plumage of birds you will also be enabled to tell what little chorister has been destroyed. These remnants are most frequently found on elevated places—a moss-covered rock, large stone, or even the broad horizontal limb of a tree. The Sparrow-Hawk does not consume many of the feathers, except inadvertently, the wing and tail-feathers being invariably rejected; but most of the bones are eaten, as also, in the case of small birds, the feet. The refuse of the bird's food is ejected in the form of pellets, after the manner of all raptorial birds. The food of the Sparrow-Hawk is chiefly composed of the smaller birds up to the size of a Thrush, although he is capable of destroying, and does destroy, much larger birds, as Partridges and Pigeons; and in the poultry-yard his depredations are considerable, especially when the young chicks are about. Most of the small birds are his victims, more or less—the Bunting on the hedgerow, the Pipit cowering in the meadow-grass, the Robin and Accentor in the garden, and the Creeper and Wren in amongst the trees, as also the various species of Finches and Warblers. But birds do not form the Sparrow-Hawk's only fare. Sometimes you see him dip silently and swiftly down amongst the marshy vegetation in old watercourses and bear off a rat or frog; and field-mice, leverets, and young rabbits are often victims of his rapacity: indeed a young rabbit is a favourite bait with gamekeepers to lure this little Hawk to his doom. The Sparrow-Hawk seems to love the evening's dusk the best for searching for his food; and darkness is often falling round, wrapping the evergreens and thickets in dense obscurity, as he glides rapidly past you into their gloomy foliage to his roosting-place.

The Sparrow-Hawk is a somewhat late breeder, its nest being seldom found before early May. The probable cause of this lateness is that, like the Kestrel, it does not begin to breed until the woods and fields are replete with those migratory birds that form its chief support during the summer months. Notwithstanding the belief to the contrary, the Sparrow-Hawk always builds its own nest. Certainly it is not because no old nests are accessible; for the Carrion-Crow and the Magpie build in plenty all around, and their deserted nests are on every side; still it shuns them all and makes its own. Varied indeed are the sites selected for the purpose. You find it in the deepest woods, in the oak probably more frequently than in any other tree; you see it midway up the alder bordering the stream flowing through the coppice; and it is not unfrequently built in a pine tree. Hewitson says this bird occasionally builds on a rock; but I have never heard of an authenticated instance of its doing so. The nest is very rarely found on the topmost branches; it is always placed on the broad branches and near the trunk, not at their extremities. The nest itself is a large one, but the cavity which contains the eggs is small and very shallow. It is always made of sticks, the majority being dead ones, sometimes perhaps conveyed from neighbouring Magpies' nests; and it contains no lining beyond a few roots and, in rare cases, a little moss; but in all the nests which I have seen there was much down, sometimes halfway down the tree, probably accidentally rubbed off the bird as she flew off and on the nest. The larger and coarser twigs form the outside portion of the nest, smaller and finer ones the cavity in which the eggs are laid. If built in the fir-woods, the branches of that tree are almost exclusively used, the withered ones being seemingly preferred, although a few living sprays are sometimes wove amongst the rest, and give the nest a bright and pleasing appearance with their emerald-green bursting buds. From the fact that these birds pair for life, the same nest will not unfrequently be used in successive seasons, being patched up each spring, as occasion demands. The nest of the Sparrow-Hawk is finished some time before the first egg is deposited; Dixon has, in some cases, known nests of this bird, although quite finished, remain empty for a week and sometimes more before the first egg has been laid. The Sparrow-Hawk not unfrequently lays her eggs at irregular intervals, and, is as usual in such cases, sits on them as soon as laid. They are from three to six in number (although five may be said to be an average clutch), round in shape, and most richly marked. In ground-colour they are a delicate bluish green; and the spots, bold and decided, are reddish brown of various shades and intensity. Some specimens are so richly marbled and clouded as to hide the ground-colour; others have the spots in a zone round the end of the egg, or more rarely round the middle; while yet, again, some are spotless, or very faintly marked, thus approaching very closely to certain types of Harrier's eggs; and even in the same nest one egg will be conspicuous by its small size or the absence of spots. They vary from 1·78 to 1·5 inch in length, and from 1·39 to 1·2 inch in breadth. You may remove the eggs of the Sparrow-Hawk indiscriminately, and the female bird will still continue laying in the same nest, like the Starling and several other life-paired birds. Dixon has known as many as fourteen eggs to have been taken from a nest of this species in a single season.

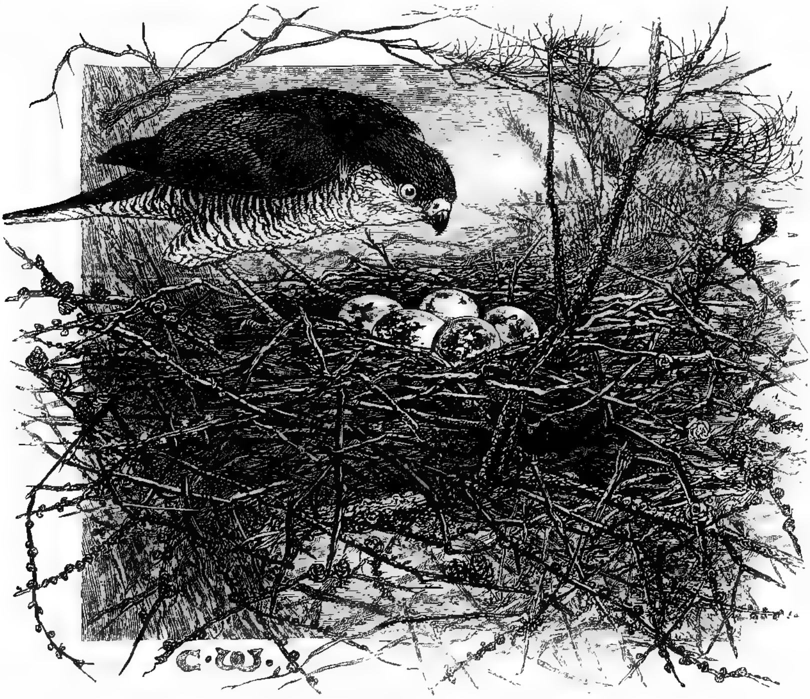
The female Sparrow-Hawk is usually found upon the eggs; yet the male will occasionally take his turn. A close sitter, the bird will not unfrequently allow you to reach the nest ere it quits its charge, to dash silently, like a meteor, through the labyrinth of branches. As is usual with Raptorial birds, the female is much the largest, and by far the most courageous, often brushing an intruder's head with her wings when her nest is menaced. Upon leaving the nest no sound escapes her, as a rule; but sometimes she disturbs the shady stillness with a harsh scream of anxiety for her home. The male Sparrow-Hawk, as is the case with many birds of this order, often soars above the nesting-place to an immense height, wheeling round and round with wings expanded. But one brood is reared in the year, although, if the first eggs are taken, as has been already remarked, others will be laid. The young are fed assiduously; and at no time of the year are the Sparrow-Hawks so bold and venturesome as now, when they have hungry young to cater for. It is then the game-coverts yield their tribute of young chicks; it is then the smaller birds are even more sorely pressed; and it is then they will dash silently and swiftly into the poultry-yards and bear off the young chicks so quickly. When the young reach maturity, which is but slowly, they are abandoned by their parents, and quit their birthplace for ever.

The eyrie of the Sparrow-Hawk is a very interesting place to visit when the young are almost ready for flight. Young Sparrow-Hawks exhibit great diversity of size and colour. Indeed there are seldom two in the same nest alike when they have attained their first plumage. In the nest are pellets and feathers in abundance—not the feathers of game-birds, as a rule, but usually of the smaller Finches and Warblers, notably of the Chaffinch and Willow-Warbler. Animals are sometimes brought, as the fur of the rabbit and the mole tells us pretty plainly. A few days before the young gain the use of their wings they spend the greater part of their time upon the tree, flying from branch to branch, trying and strengthening their pinions, and uttering their peculiar tremulous notes. Even before they are fully fledged, if the nest is visited, the young birds will scramble out onto the branches, using their beaks to assist them, and usually getting quite out of reach. The leaves and branches of the tree round and about the nest are white with their droppings, just as though they had been whitewashed; yet but little or no smell pervades the place. Before finally taking wing and quitting their birthplace for ever, they repair to the neighbouring trees, where they are for a few days more fed and tended by their parents, until strong and matured enough to gain their own living.

Such a bold and ravenous bird as the Sparrow-Hawk very naturally receives no favour from the game-preservers; he is shown no mercy, is shot and trapped whenever the occasion is afforded. That the Sparrow-Hawk is a destructive bird I am not going to deny; but certainly there are some few good points in his character which deserve a passing notice. The small birds are certainly kept in check partly through his agency; and the Ring-Doves (a perfect pest to the farmer in some districts) are his favourite food when those birds congregate towards the autumnal equinox to feed on the acorns and beech-mast. Then, again, the taking of weakly birds and animals by the Sparrow-Hawk serves to keep disease away and preserve that healthy standard of perfection which Nature inexorably demands.

In a trained state the Sparrow-Hawk is a useful bird for taking Quails, Partridges, Blackbirds, and Thrushes; but, as Lord Lilford very justly remarks, it is of uncertain temper and difficult of management, and requires quite a different system of training from that employed for the true Falcons. In India the Sparrow-Hawk is very highly prized, and flown successfully at Coursers and Sand-Grouse.

The Sparrow-Hawk's upper plumage generally, with the exception of a small white patch on the nape, is dark bluish slate-colour; the tail greyish brown, transversely barred with darker brown; the underparts are rufous, barred with darker rufous-brown. The beak is blue; cere, legs, and toes yellow; irides orange; claws black. The female is usually three or four inches longer than the male, and has the upper parts brown, with a white nape-spot, and the underparts greyish white barred with brown. The young males resemble the female; but the brown feathers of the upper parts have rufous margins; the tail is reddish brown, especially at the base. Very old females sometimes assume the plumage of the male.



SPARROW-HAWK'S NEST.

ACCIPITER PALUMBARIUS.

GOSHAWK.

(PLATE 5.)

Accipiter astur, *Briss. Orn.* i. p. 317 (1760, adult).
Accipiter circus major, *Briss. Orn.* i. p. 398 (1760, imm.).
Falco palumbarius, *Linn. Syst. Nat.* i. p. 130 (1766); et auctorum plurimorum—*Temminck, Naumann,* (*Gould*), (*Newton*), (*Sharpe*), &c.
Falco albescens, *Bodd. Tabl. Pl. Enl.* p. 25 (1783, *ex D'Aubenton*).
Falco gallinarius, *Gmel. Syst. Nat.* i. p. 266 (1788).
Falco marginatus, *Lath. Ind. Orn.* i. p. 26 (1790).
Falco tigrinus, *Beseke, Vög. Kurl.* p. 10 (1792).
Astur palumbarius (*Linn.*), *Lacép. Mém. de l'Inst.* iii. p. 505 (1801).
Dædalion palumbarius (*Linn.*), *Sav. Ois. de l'Egypte*, p. 33 (1810).
Sparvius palumbarius (*Linn.*), *Vieill. N. Dict. d'Hist. Nat.* x. p. 331 (1817).
Falco longipes, *Nilss. Orn. Suec.* i. p. 18, pl. 1 (1817).
Accipiter astur, *Pall. Zoogr. Rosso-As.* i. p. 367 (1826).
Buteo palumbarius (*Linn.*), *Flem. Brit. An.* i. p. 54 (1828).
Astur gallinarum (*Gmel.*), *Brehm, Vög. Deutschl.* p. 83 (1831).
Accipiter palumbarius (*Linn.*), *Jenyns, Brit. Vert.* p. 85 (1835).
Astur indicus, *Hodgs. in Gray's Zool. Misc.* p. 81 (1844).

The Goshawk probably was never a common bird in the British Islands; and of late years, since the forests have nearly all been cut down and game-preserving has become so universal, this noble bird of prey has become only an accidental visitor. It is only within the last half-century that it has ceased to breed in Scotland. The Goshawk is not strictly a migratory bird; otherwise it would probably appear much more commonly in this country. Many birds of prey zealously guard their hunting-grounds from trespassers of their own species, and drive away their own young to seek new breeding-grounds. The Goshawk is no exception; and occasionally one of the young birds, which may be looked upon as an emigrant rather than a migrant, finds its way to our shores. They usually arrive on the east coast, and soon fall a prey to the gamekeeper or the bird-stuffer. Newton mentions the comparatively recent capture of seven examples in Northumberland, eleven in Norfolk, and five in Suffolk.

The Goshawk is nowhere very common, but is generally though sparingly distributed throughout the wooded districts of the whole of Europe, from the Mediterranean up to the limit of forest-growth. It is partially migratory in the extreme north, but has been obtained in winter at Tromsö, on the shores of the Varanger Fjord, and at Archangel. In Africa it is principally known as a somewhat accidental winter visitant, though it has been said to breed in Tangiers, and it certainly does so at Gibraltar. Eastwards it is found throughout Siberia up to the limit of forest growth, Asia Minor, North Palestine, Persia, Turkestan, the Himalayas, Mongolia, and North China. In India it is occasionally seen on the plains during the cold season.

The Goshawk is a giant Sparrow-Hawk. In spite of his comparatively short wings, he is a bird of very powerful flight and of undaunted courage. He disdains to eat carrion, and will scarcely stoop to catch a sitting bird. He hunts on the wing, and nothing is safe from his attacks, from a Sparrow to a Grouse, or from a mouse to a young roe. The Goshawk has the reputation of being a very bloodthirsty bird, killing more game than he can possibly eat. This bird is essentially a forest one, and in summer confines himself principally to the woods and the open places in their immediate neighbourhood; but late in autumn and winter he extends the range of his hunting-grounds, pursuing Partridges and hares, and making raids on the pigeons belonging to the farmers, and sometimes snatching the game from under the very nose of the sportsman. The Goshawk, however, is a *Hawk*, and not a Falcon; and his powers of flight are not sufficient to enable him to fly down a bird when it has fairly got under weigh; consequently he resorts to artifice, stealing upon his prey from behind some cover, and dashing upon it unawares. Naumann describes the alarm-note as a shrill *keerk-keerk-keerk*, very similar to that of the Sparrow-Hawk; and besides this he has a call-note, a deep *gyak-gyak-gyak*, much resembling a similar note of the Peregrine.

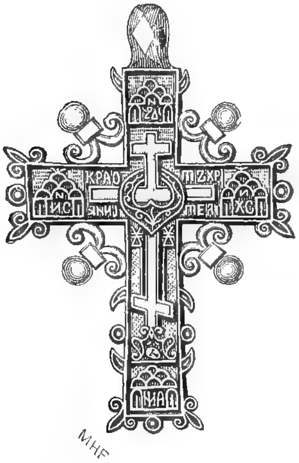
The Goshawk very seldom perches on the ground or on a stone, or on the topmost twig of a tree. Its favourite food is pigeons and ducks.

Where the Goshawk is a resident bird, it is a very early breeder, the eggs being laid in the second half of April or the first half of May. It generally selects a lofty beech for the situation of its nest, which is usually placed at some considerable elevation from the ground in one of the main forks. It also breeds in oaks and pine trees; and, even when systematically robbed, it will breed year after year in the same nest. On the 7th of May last, Herr Kroll showed me a nest in an oak tree from which he had taken eggs nearly every year for the last eighteen years. Early in June I saw several nests in Pomerania, from one of which the bird flew off. One of these was built in the fork of a beech tree 75 feet from the ground, and was an enormous structure, measuring at least four feet by two. It builds a deeper nest than the Eagles or the Buzzards, and lines it with fine twigs, roots, moss, and lichens, but not green leaves. The largest nests are most probably the oldest, and have been added to year after year. All the nests I saw were in the forests, but not at any great distance from the outskirts. The statement that this bird sometimes builds on rocks should be received with great caution. The usual number of eggs is four; but it occasionally lays three, and sometimes five. They are very pale bluish green, approaching white, and in very rare instances show decided spots of dirty blood-red. Wolley mentions eggs marked with pale olive; but none of these have ever come under my notice. The clay-coloured blotches mentioned by Dresser are not uncommon, and appear to be stains. In size they vary from 2·45 to 2·1 inch in length, and from 1·85 to 1·6 inch in breadth. Unspotted eggs of the Common Buzzard often resemble the eggs of the Goshawk so closely as to be undistinguishable from them.

The Goshawk was one of the falconer's favourites, and was flown at Hares, Rabbits, Pheasants, Partridges, Rock-Doves, Teal, and Crows. It does not, however, appear to have been a bird of long flight, and would soon give up its quarry if not successful, and perch on some tree or bush to await a new one.

The general colour of the Goshawk's upper parts is dark greyish brown, the tail with four bars of darker brown; eye-stripe, lores, and nape dull greyish white; rest of the underparts nearly white, spotted and barred with dull black, except on the under tail-coverts; cheeks dark brown. Legs and toes yellow, claws black; beak bluish horn-colour; cere yellow; irides orange. The female resembles the male, but is larger and browner.

The young bird has the upper parts brown, the underparts buffish white, closely marked with drop-shaped spots of reddish brown; cere and legs greenish yellow; irides yellow.



ASTUR ATRICAPILLUS.

AMERICAN GOSHAWK.

Falco atricapillus, *Wils. Am. Orn.* vi. p. 80, pl. 52. fig. 3 (1812); **et auctorum plurmorum**—(*Gray*), (*Kaup*), (*Bonaparte*), (*Cassin*), (*Newton*), (*Sharpe*), (*Dresser*), &c.
Sparvius atricapillus (*Wils.*), *Bonn. et Vieill. Enc. Méth.* iii. p. 1274 (1823).
Hierofalco atricapillus (*Wils.*), *Cuv. Règne An.* i. p. 323 (1829).
Astur atricapillus (*Wils.*), *Bonap. R. A. Cuv. Oss.* p. 33 (1830).
Falco regalis, *Temm. Pl. Col.* i. pl. 495 (1830).
Dædalion pictum, *Less. Traité*, p. 67 (1831).
Astur palumbarius, var. atricapillus (*Wils.*), *Ridg. N. Amer. B.* iii. p. 237 (1874).
Astur palumbarius (*Linn.*), *apud Swainson & Richardson*, (*Audubon*), &c.

The claim of the American Goshawk to be considered a British bird rests upon three examples. The first was obtained in 1869 by Mr. Robert Gray, at Brechin, in Forfarshire, from a bird-stuffer, who said it had been shot by a keeper on the flanks of Sheechallin, in Perthshire: Mr. Gray describes it as having the breast and underparts an almost uniform grey, but showing, on closer inspection, faint transverse markings and a thin longitudinal streak in the centre of each feather (see Gray's 'Birds of W. of Scotland,' p. 39). The second example is recorded in the 'Ibis' for 1870, p. 538, by Sir Victor Brooke: he states that it was shot in the February of that year in the Galtee Mountains, Tipperary, and that he had carefully compared it with an American specimen in the Dublin Society's collection. The third example is recorded by Mr. A. Basil Brooke in the 'Zoologist' for 1871, p. 2525: after referring to the previously mentioned example, he adds that a second specimen was afterwards shot near Parsons Town, King's County. All three examples are said to be adult females.

It breeds throughout Arctic America and the northern portions of the United States. In its habits and in the colouring of its eggs it does not differ from the Palæarctic species, of which Ridgway considers it a mere variety.

The American Goshawk is very nearly allied to our Goshawk, but is apparently a distinct species. It has been said to be greyer on the upper parts and blacker on the head. In a large series of skins these differences do not appear to hold good, being apparently dependent upon age and season, and found equally in European and American birds. The great difference is in the pattern of colour on the feathers of the underparts, especially those on the breast and flanks. In the European bird the dark markings take the form of distinct transverse bars, whilst in the American bird the feathers are irregularly marbled with brown.

Family STRIGIDÆ, OR OWLS.

The Owls are a very well-defined group of birds, and are associated by Sclater with the Cuckoos, the Parrots, the Birds of Prey, the Pelicans, the Herons, and the Ducks. Forbes places them with the Goatsuckers, Rollers, and Bee-eaters, near the true Passeres. Gadow allies them with the Parrots, the Birds of Prey, the Pigeons, and the Gallinaceous birds. Here, again, our three authorities do not all agree as to any of the families which are allied to the Owls, which I place as my second family, with the caution to the reader that it may or may not be related to the families which precede or follow it.

To the ordinary observer the Owls appear to be closely related to the Birds of Prey by the form of their bill and claws, and by the shape of their eggs. They appear to be specially related to the Harriers by their facial disks, to the Ospreys by their reversible third toes, and to the Eagles by their feathered tarsi. It is difficult to believe that all these similarities are accidental; and when we find such differences of opinion amongst scientific men as to their true affinities, it is difficult to avoid coming to the conclusion that the value of osteological, myological, and other internal characters have been somewhat overrated.

Owls only moult once in the year, and appear to accomplish their change of dress in July and August. Birds shot from September to December are in splendid plumage; but in April, May, and June the plumage is often very shabby and worn.

The Owls are, perhaps, the most cosmopolitan group of birds. They are represented in the most northerly point of the Arctic regions and on most of the Oceanic Islands. The number of species and subspecies known is about 200, of which at least 10 are recorded as British, which may be generically separated as follows :—

A. Hinder margin of sternum entire; inner margin of claw on middle toe serrated; inner toe about equal to the middle toe in length .... ALUCO.
B. Hinder margin of sternum with two or more distinct fissures or clefts; inner margin of claw on middle toe not serrated; middle toe longer than the inner one
  a. Ear-conch with an operculum .... STRIX.
  b. Ear-conch without an operculum.
    *a*¹. Nostrils placed in a projection formed by an inflation of the cere. NOCTUA.
    *b*¹. Cere not inflated.
      *a*². Underparts white or barred transversely; shaft-streaks and ear-tufts obsolete or nearly so .... SURNIA.

b^2. Underparts with the broad longitudinal streaks generally far more conspicuous than the narrow transverse bars, which are sometimes obsolete; ear-tufts very conspicuous.
  a^3. Wing over 12 inches.............................. BUBO.
  b^3. Wing never exceeding 9 inches .... SCOPS.

Genus ALUCO.

The Barn-Owl has been knocked about by modern ornithologists from genus to genus until it can scarcely find rest for the sole of its foot. Sharpe (Ibis, 1875, p. 324) evolves an elaborate argument to prove that it is the type of the Linnean genus *Strix*; whilst Newton (Ibis, 1876, p. 94) gives excellent reasons (if his premisses are true) why it should be placed in the genus *Aluco*. I am unable to accept Newton's premisses, as I cannot, for the reasons stated in the remarks on the genus *Strix*, admit that Brisson made a genus of Owls additional to that of Linnæus; but I accept his conclusions on the ground that in 1767 Gerini, in his 'Ornithologia Methodice Digesta,' i. p. 88, founded the genus *Aluco* for the Barn and Snowy Owls; the latter of which was removed in 1826 by Stephens to a genus of its own, leaving the Barn-Owl the type of *Aluco*.

The Barn-Owls belong the group of Owls having large ear-openings protected by an operculum, but are isolated from all the other genera of Owls by the absence of clefts to the hinder margin of the sternum.

They form a somewhat aberrant division of the Strigidæ, and may be at once distinguished from all other birds of this family by the serrated or toothed margin to the middle claw. Their facial disk is also more elongated. The bright orange-buff of various shades of their upper, and the silky whiteness of their under plumage is also another characteristic peculiar to them. The wings are very long and ample, but the tail is somewhat short.

The Barn-Owls are an essentially tropical genus, being found in the tropics of both hemispheres, and only in Western Europe extending much more than forty degrees from the equator. They are all very nearly allied, but are usually divided into five or six species, some of which are again subdivisible into several subspecies, varieties, or local races. The British species is the only one found in Europe.

Like most other Owls, the Barn-Owls are principally nocturnal in their habits, seeking their prey on the wing. Their plumage is extremely soft, and their flight almost noiseless, enabling them to drop unawares on little birds and small mammals, the latter forming their principal food. They also feed on insects and occasionally fish. They are only migratory in the northern limits of their range. They breed in holes, and lay pure white eggs.

ALUCO FLAMMEUS.

BARN-OWL.

(Plate 7.)

Strix aluco, *Briss. Orn.* i. p. 503 (1760); *Linn. Syst. Nat.* i. p. 132 (1766).
Strix flammea, *Linn. Syst. Nat.* i. p. 133 (1766); **et auctorum plurimorum**—
Temminck, *Naumann*, *Gould*, *Macgillivray*, *Bonaparte*, *Sharpe*, (*Newton*), &c.
Aluco albus, *Gerini*, *Orn. Meth. Dig.* i. p. 89, pl. lxxxxii. (1767).
Strix alba, *Scop. Ann. I. Hist. Nat.* p. 21 (1769).
Aluco flammeus (*Linn.*), *Flem. Brit. An.* p. 57 (1828).
Strix guttata, *Brehm*, *Vög. Deutschl.* p. 106 (1831).
Eustrinx flammea (*Linn.*), *Webb & Berth. Orn. Canar.* p. 8 (1841).
Strix poensis, *Fraser*, *P. Z. S.* 1842, p. 189.
Stridula flammea (*Linn.*), *Sélys-Longch. Faune Belge*, p. 60 (1842).
Strix insularis, *Pelz. Journ. Orn.* 1872, p. 23.

The Barn-Owl is a common resident throughout the British Islands, including the Hebrides, and appears only recently to have become extinct in the Orkneys.

It is by no means the cosmopolitan bird that it has been represented to be. It is, in point of fact, a tropical bird, found throughout the equatorial region of both hemispheres, and not ranging more than forty degrees north or south of the equator, except in Western Europe, where the influence of the Gulf-stream has produced a climate mild enough to allow of its wintering there. It is very rare in South Sweden, and is found nowhere else in the Scandinavian peninsula. It is rare in Western Russia, but is otherwise absent from Russia, Eastern Turkey, Greece, Asia Minor, Persia, Siberia, Mongolia, and China. There appear to be seven colonies of Barn-Owls. The first comprises Western Europe south of the Baltic, and Western Africa from Algiers to the Gold Coast, including the Azores, Madeiras, Canaries, and Cape-Verd Islands; the second South Africa and Madagascar; the third the valley of the Nile and Palestine; the fourth the whole of India, extending to the north-west into Turkestan, and to the east into Burma; the fifth Java, Lombock, and Celebes; the sixth Eastern Australia and some of the Pacific Islands; the seventh North and South America from lat. 40° north to lat. 40° south, including the West Indies. In this latter colony alone Ridgway recognizes four subspecies. Barn-Owls from the other five colonies appear to be all subspecifically distinct from those of the first colony, though possibly not in every case from each other. In the West-European and West-African colony there are three forms—a pale eastern form, a dark western form, and a rufous southern form, with every possible intermediate form, and considerable irregularity in their distribution, all three forms, for example, having been found in the British

Islands. The question of the number of subspecies into which the Barn-Owl must be subdivided is far too complicated a one to be discussed here.

Although the Barn-Owl is not found in any other part of the world in such a high latitude as the British Islands, it is nevertheless the commonest Owl we have. In the daytime it is not often seen; it is preeminently a nocturnal bird. When the sun rises it retires to its hiding-place, which is generally the locality chosen in which to rear its young. This is generally a hole, sometimes on the top of an old pollard willow, often in the hollow of the trunk of an old oak, as often in some crevice in an ivy-grown ruin; and it is fond of nesting amongst the Pigeons in the farm-yard dove-cote. Other favourite places are the top of a wall under the roof of the barn, or in the belfry of the church; but occasionally it may be found away from its nest in the dark recesses of a thick pine-plantation. It sleeps all day; and if on a flat stone, where it cannot grasp its perching-place, it sleeps bolt upright, often on one leg. If it is disturbed and driven from its hiding-place, it seeks the nearest shelter from the sunlight, and all the little birds in the neighbourhood, conscious of its powerlessness to catch them in the daytime, fly after it and mob it most impertinently. But when the dusk of evening comes on, and "impudence" has gone to bed, "dignity" comes out from his hiding-place, and woe be to any little bird roosting in an exposed position on his beat! There is something weird in the silent flight of the Barn-Owl, as with measured but noiseless beat of wing he crosses and recrosses your path, looking unnaturally large in the half-light, or skims before you over the grass, ever and anon dropping down on some unfortunate mouse or rat, which he bears away in triumph to his lair, quickly returning to quarter the ground regularly backwards and forwards over his favourite hunting-fields. How successful he is is amply proved by the bushels of pellets which he disgorges in or under the nesting-place. My friend Mr. Frank Norgate once found twenty dead rats in a Barn-Owl's nest, all fresh killed! And yet the stupid farmer will slay him if he can, and nail his body against the barn-door, under the delusion that he will eat his pigeons! Both the gamekeeper and his master are his sworn foes, one generally as ignorant of his usefulness and as indifferent to his fate as the other. Norgate tells me that he has generally found by an examination of the pellets that each bird seems to have his favourite food. Those under one nest are often all mice, those under another all rats. Each pellet contains the indigestible remains of two, and sometimes of three animals. The wing-cases of beetles are also found in the pellets, but very seldom. Out of seven hundred pellets of this Owl, which were carefully examined by Dr. Altum, remains were found of 16 bats, 2513 mice, 1 mole, and 22 birds, of which 19 were sparrows. The Barn-Owl is undoubtedly the farmer's best friend. Out of between thirty and forty nests which Norgate has had an opportunity of examining, he only in one instance found remains of a bird; and that was half a blackbird. Waterton records an instance, which he saw himself, of a Barn-Owl dropping down into a pond, like an Osprey, and flying off with a fish.

The usual note of the Barn-Owl is a screech inexpressible in words. It is most frequently heard early in spring, and always at night. It may not be so discordant as the music that was heard when

Ye tom cats were sitting atop of ye wall
As Sir Plimsoll sat sipping his wine,

or so melancholy as the wild cries of the Black-throated Divers that greeted our ears all night through as we were driven up stream in the 'Thames' on the Yenesay, amidst ice-floes and pack-ice; but it is harsh enough and weird enough to have given the bird a bad name amongst ignorant and superstitious country folk. Besides this "screech" the Barn-Owl has a "snore," generally supposed to be confined to the hungry young, though Norgate tells me he has heard it from a bird on the wing. Barn-Owls are very fond of nesting in the roofs of churches; and the "snore" is often heard during service, the unwonted noise having apparently wakened the young Owls, who naturally feel hungry after their sleep, and begin to "snore," a habit which the bipeds with feathers may have learnt sitting over some pulpit from the bipeds without feathers sitting under it.

The Barn-Owl is not an early breeder, eggs seldom being found before the end of April or the beginning of May; but it often has two, and sometimes three broods in a season. Norgate tells me he has found unfledged young in November; and Waterton found one in December. Occasionally the eggs are laid at intervals. I once climbed up to a Barn-Owl's nest in a hollow oak near Oxford, and took out of the hole two nearly fresh eggs, two young birds recently hatched, and two nearly fledged. This must have been an exceptional case, as out of the numerous nests which Norgate has taken he has never met with a similar instance.

The Barn-Owl makes no nest; but the eggs are often surrounded by pellets. The number of eggs varies from three to seven. They are pure white, not quite so round as Owls' eggs usually are, and with little or no gloss. They vary in length from 1·7 to 1·53 inch, and in breadth from 1·3 to 1·2 inch.

The southern form of the Barn-Owl has the general colour of the upper parts buff, with fine grey vermiculations and black and white spots; wings and tail obscurely barred with dark brown; face and underparts silky white, with a few spots on the flanks, and more or less rufous on the breast; feet covered with bristly hairs; claws black, irides black, bill pale yellowish. The female resembles the male. Nestling birds are covered with pure white down.

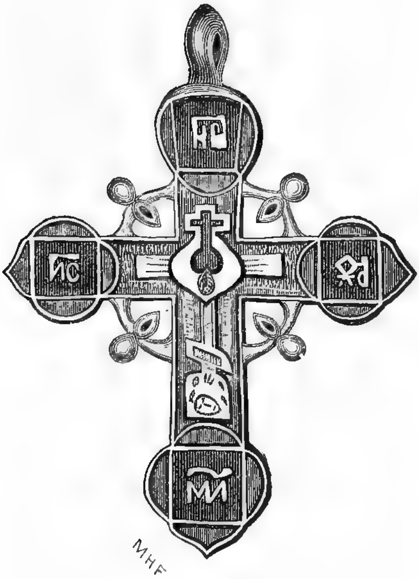
Of the climatic variations of the Barn-Owl less is known than of those of the other Owls. The varieties of the Barn-Owl which occur on the American continent have been ably classified by Ridgway; but, although Sharpe has collected an array of facts on the subject, occupying no fewer than fifty pages of Rowley's 'Ornithological Miscellany,' no one has yet attempted in any way to classify the varieties of this bird which occur in the Old World.

Of the three forms found in the British Islands, the rufous southern form is the commonest, and is well figured in Gould's 'Birds of Great Britain' (i. pl. xxxviii.). The pale eastern form and the dark western form are both figured in Dresser's 'Birds of Europe' (v. pl. 302); but a better figure of the latter may be found in Rowley's 'Ornithological Miscellany' (i. pl. x.).

Genus STRIX.

The genus *Strix* was founded in 1766, by Linnæus, in his 'Systema Naturæ,' i. p. 133, to contain all the Owls. Linnæus had the good luck to adopt a binomial system of nomenclature; and consequently his twelfth edition has been selected as the starting-point of the present system, all previous specific names being under the Stricklandian Code absolutely ignored. Under the **auctorum plurimorum** system which I have adopted this restriction is no longer necessary, so far as regards specific names. In the selection of generic names I propose to try and follow the Rules where it is possible to discover their meaning. Much ingenuity has been expended in the endeavour to find the type of the restricted genus *Strix*. Whatever credit is due to Linnæus for his system of nomenclature, there can be no doubt that his knowledge of birds was very limited, and his attempts at the diagnosis of species in most cases a complete failure. In no group is this more clearly shown than in the Owls. Their synonymy is consequently in the greatest confusion. It seems almost incredible, but there can scarcely be a doubt that Linnæus was unacquainted with either the Short-eared Owl, the Ural Owl, the Lapp Owl, or Tengmalm's Owl, all four species more or less common in Sweden. An equally surprising circumstance is the fact that, out of the twelve Owls which Linnæus attempted to describe, the identifications of five have been or still are subjects of dispute. As an ornithologist Brisson stands head and shoulders above Linnæus; and it was doubtless a consciousness of this superiority that induced Strickland to write the illogical and inconsequent explanation to Rule 2, under which Brisson's genera, though dating prior to 1766, are admitted whenever they are additional to those of Linnæus. Brisson divided the Owls into two genera, making the Wood-Owl (his *Strix strix*) the type of *Strix*, and the Long-eared Owl (his *Asio asio*) the type of *Asio*. As, however, I consider these two Owls to be congeneric, I am obliged to regard Brisson's two genera as synonyms of each other; the alleged additional genus falls to the ground; and, consequently, by the rules his names are out of court. The first subdivision of the genus *Strix* was in 1767, when Gerini, in his 'Ornithologia Methodice Digesta,' pp. 90, 91, restricted the genus *Strix* to nine species, placing the Wood-Owl first as *Strix aluco*. As this species is also the *Strix strix* of Brisson, the arguments in favour of its being accepted as the type are almost conclusive.

The Wood-Owls may be distinguished from all other Owls except the Barn-Owls by their large ears, half the size of the head, protected by an operculum. In their habits they scarcely differ from other Owls. Their eggs are pure white. This genus contains about forty species, which are distributed all over the world, except in the Australian region; and even here one species has found its way to the Sandwich Islands. Seven species are found in Europe, of which four have occurred in Great Britain. The Wood-Owls may be divided into subgenera, either on the presence or absence of ear-tufts or on the character of the markings of the underparts—in some the transverse bars being principally developed, and in others the longitudinal stripes. The first characters are those usually adopted, but the latter are probably the most important.



STRIX ALUCO.

WOOD-OWL.

(PLATE 6.)

Strix strix, *Briss. Orn.* i. p. 500 (1760, rufous form).
Strix ulula, *Briss. Orn.* i. p. 507 (1760, grey form).
Strix stridula, *Linn. Syst. Nat.* i. p. 133 (1766, rufous form).
Strix ulula, *Linn. Syst. Nat.* i. p. 133 (1766, grey form).
Strix aluco, *Gerini, Orn. Meth. Dig.* i. p. 90, pl. lxxxxiv. (1767); **et auctorum plurimorum**—*Latham, Pallas, Vieillot, Naumann, Temminck, Sundevall,* (*Newton*), (*Gould*), (*Gray*), (*Bonaparte*), *Schlegel,* (*Strickland*), (*Sharpe*), &c., nec *Linnæus.*
Strix sylvestris, *Scop. Ann. I. Hist. Nat.* p. 21 (1769).
Strix sylvatica, *Steph. Shaw's Gen. Zool.* vii. pt. 1, p. 253 (1809).
Syrnium ululans, *Sav. Syst. Ois. de l'Egypte,* p. 52 (1810).
Syrnium stridulum (*Linn.*), *Steph. Shaw's Gen. Zool.* xiii. pt. 2, p. 62 (1826).
Syrnium aluco (*Linn.*), *apud Boie, Isis,* 1828, p. 315.
Ulula stridula (*Linn.*), *Selby, Ill. Brit. Orn.* i. p. 102 (1833).
Aluco stridulus (*Linn.*), *Macgill. Rapac. B. of G. Brit.* p. 367 (1836).
Ulula aluco (*Linn.*), *apud Keys. & Blas. Wirb. Eur.* p. 143 (1840).

Linnæus somewhat hesitatingly separated the grey form of the Wood-Owl from the rufous form of this species, naming the former *Strix stridula* and the latter *Strix ulula.* Latham, Tunstall, Pennant, and others considered them distinct under these Latin names, calling them the Brown Owl and the Tawny Owl; but subsequent writers for the most part have united them. Gmelin and Pallas, naturally considering it impossible that Linnæus could have been unacquainted with the Short-eared Owl, applied the name of *Strix ulula* to that bird. Bonaparte, Gray, Newton, Sharpe, and Dresser, in defiance of the careful description in the 'Fauna Suecica,' and regardless of the fact that Linnæus described the Hawk Owl as *Strix funerea,* inhabiting both Europe and America, adopt the startling proposition that Linnæus intended to describe the European Hawk Owl under the name of *Strix ulula.*

Although Linnæus clearly gives two names to the Wood-Owl, by far the greater number of ornithologists have selected for that species a third Linnean name, *Strix aluco,* which most likely belongs to the Barn-Owl, though the evidence is not very satisfactory.

The Tawny Owl is not so common in Britain as it once was. Incessant persecution is slowly producing its extermination, although it is still a resident bird in most densely wooded districts. Owing to its inordinate love of seclusion, gloom, and retirement, its distribution in the British Islands is restricted to wooded localities; and as tree-planting and improvements increase, the range of the bird is becoming more extensive, even if its actual numbers are decreasing.

The Wood-Owl is not generally a migratory bird; nor does its range extend far to the north. Under the influence of the Gulf-stream, the winters in Scandinavia are mild enough to allow of its finding food up to the Arctic circle. In West Russia its range does not extend to Archangel; and in East Russia it is said not to be found north of lat. 58°. It has never been recorded from Siberia; but it is a rare resident in Turkestan, the Himalayas, and Thibet. Père David found it at Moupin; and Swinhoe obtained it in North China. The southern range of the Wood-Owl extends into North Africa. In Algeria it is a resident; and it has once occurred in Egypt. It is found in Asia Minor and Palestine, and has been obtained in the Caucasus, but not yet in Persia. Like many other birds, and especially other Owls, it has adapted itself to its surroundings, so that the colours of its plumage are "protective"—not to protect it from any enemies, but to protect it from discovery by its prey. The tropical form of the Wood-Owl breeds in the Himalayas and is a very rufous bird. Some ornithologists treat it as a distinct species under the name of *S. nivicolum.* The typical form of the Wood-Owl, commonly known as the Tawny Owl, is an intermediate link between the tropical form and the semi-arctic form commonly known as the Grey Owl. The tropical form inhabits a region where the rainfall is excessive, the typical form, as a general rule, where the rainfall is moderate, and the grey form where the climate is very dry. In the British Museum is an example of the grey form from Thibet; and I have a skin from North China. In Europe the grey form is principally found in the north and east, and occurs also in North Africa; but it is difficult to account very precisely for the geographical distribution of these two forms, as the females and young of the grey form are more rufous than the adult males, and both forms appear to have occasionally strayed to some extent out of their beat, as if the cause which produced the difference of colour had ceased to exist.

The Tawny or "Wood"-Owl, as it is often called, differs greatly from the well-known Barn-Owl, both in the colour of its plumage, its haunts, and its notes. The Tawny Owl is a dull and sombre bird, well adapted to escape discovery in its gloomy haunt in the quiet and seclusion of the forest. It sometimes chooses a retreat in the thick pine-woods or in the tangled game-coverts where the undergrowth is dense and the timber well matured. It also frequents the oak-forests, selecting a home in the interior of one of the decaying giants that for centuries has withstood the assaults of time and tempest, and where the solitude is rarely broken, except by the laugh of the Woodpecker, the murmur of the Doves, and the Pheasant's harsh and discordant morning and evening call. In some instances I have known this bird choose a hole in a ruin or a cave for its daily resting-place; but such instances are rare. The Tawny Owl is also easily distinguished from the Barn-Owl by its note. The latter bird utters a harsh shrill screech; but the present species hoots a loud and clear *hoo-hoo-hoo,* or perhaps, more accurately, *ŏ, ŏ, ŏ.* Singularly startling and weird-like is this note of the Tawny Owl, especially when it is accompanied by the darkness and the silence of the forest.

The Owls, as a rule, are only active at nightfall; consequently their habits are but little known. The Tawny Owl only invites you to observe its actions when the sun has sunk behind the horizon and the landscape is enshrouded in gloom. Guided by its loud and clear hooting cry, you may know its whereabouts; and a dissection of the pellets it ejects will tell you of what its food consists. Even in the forest at nightfall there is much to interest and instruct. Numberless strange sounds greet the ear, and inform you that nocturnal creatures are abroad. Now the rustle of the bracken tells you that some truant stoat or weasel is on a marauding expedition. The shrill squeal of the wood-mouse is heard as it burrows under the withered leaves. The almost noiseless tread of the rat or mole may startle you, or the purr of the Nightjar disturb your reverie, or you may obtain a glimpse of the rabbits holding high carnival in the open glades and drives. All these creatures are of nocturnal habits; and many of them furnish the Tawny Owl with a meal. When the moon, hitherto hid behind a dense mass of cloud, peeps forth, the shadows suddenly lengthen, and the still forest assumes an almost daylight brightness, you may hear the Owl's strange hooting note borne low and soft on the night wind, and may perchance see the bird fly softly through the air and alight on the dead top of an oak. At close quarters its hooting cries startle by their depth of tone and clearness. If you are very well concealed and scarcely breathe, you may see the bird ruffle up its plumage, sit motionless for a second, and then launch into the air. Downwards it seems to swoop; for the gloom will not permit you to observe it closely, and you can but conjecture that its bright eye, most piercing in the darkness, has detected some mouse, mole, or frog, that falls a victim to the noiseless approach of its enemy. But these creatures are not the Tawny Owl's only prey; for it will take beetles and insects, and more rarely the surface-feeding fish. Occasionally it will take a benighted bird from the hedgerows, a Bunting, or a Whinchat, or other birds which are late in seeking their roosting-place (a habit which frequently costs them their life).

The Tawny Owl does not escape the persecution of the game-preserver; but, although not entirely guiltless of the charge of poaching, its inroads on the preserves are trifling, and usually confined to a feeble leveret or young rabbit. In its habits the Tawny Owl is strictly nocturnal, and rarely indeed leaves its place of concealment in the daytime unless disturbed. Most Owls have a great aversion to the light, yet none more so than the present species; and when by accident driven from its place of concealment during the day into the sunshine, it seems utterly bewildered, forming a butt for all the smaller birds, who mob it unmercifully. During the summer the adult Tawny Owl is not heard to hoot so frequently, the cries heard at that season being from the young, and usually uttered in the day-time. It is in the autumn nights when its voice is heard to perfection; and it keeps up its cry with little intermission until the following breeding-season. This note is most frequently uttered in the evenings and just before dawn, and, although somewhat weird in tone, is far from melancholy. In the pairing-season the male bird has a peculiar call, which sounds singularly wild and uncanny.

During the moulting-season, in July and August, the Tawny Owl does not leave its forest home; but when that time has passed it will often, with its young, visit the farmyards and villages in search of prey, or hunt the stubbles and open fields. In the dark and foggy days of winter this Owl is sometimes seen abroad before sunset.

Tawny Owls, to a certain extent, are migratory; but the birds that breed in our own land probably never quit their old home. In the autumn they are frequently taken in the flight-nets on the low-lying coasts—sometimes as many as half a dozen being caught together in a single night, leading to the conclusion that they perform their annual wanderings in company. These migrants come from northern lands, where the winters are severe, and of the small mammals and birds the former are all lying dormant during the long northern night, and the latter have sped away to a southern haunt to escape its severity.

It is very probable that the Tawny Owl pairs for life, and confines itself to one district if left undisturbed, although it seldom nests in the same hole each successive year, but, like many of the raptorial birds, has two or three favourite spots, using each in turn. It breeds somewhat earlier than the Barn-Owl, its eggs often being laid early in March. But the eggs and unfledged young are sometimes taken throughout the summer up to the month of August; it is therefore possible that this bird has two or more broods in the year. The bird's daily roosting-place, however, is not always its nesting-site; for it will sometimes frequent dense ivy-clumps or pine trees, only quitting them during the breeding-season. Usually the eggs are laid in a hole in a tree—in some cavity in a venerable moss and lichen-covered oak, or in the interior of a beech or elm whose trunk is rifted and decayed into a dozen suitable nesting-places. Occasionally the bird will rear its young in a similar situation to that which the Barn-Owl selects. It will also sometimes breed in an old Wood-Pigeon's nest or squirrel's "drey" in an ivy-covered tree, and at other times will choose a deserted nest of a Crow or Magpie. More extraordinary choice, however, still, is a hole in the ground. Mr. Gurney records that in Norfolk it occasionally breeds in a deserted fox- or rabbit-burrow; and Mr. A. W. Johnson has made similar observations of the nesting of this species in Northumberland. He writes to me as follows:—

"The Tawny Owl is fairly abundant in this district, and is found breeding in suitable localities throughout the valleys of the Tyne, Wear, and Derwent. The situations chosen by this bird are very various; for when its favourite sites (such as hollow trees, holes in cliffs, or under roots) are wanting, it avails itself of rabbit-burrows, and even lays its eggs upon the ground under the thick branches of the fir. One locality within ten miles of Newcastle, which, owing to the abundance of food, always contains two or three pairs if not more, is a particularly good place in which to study their breeding-habits, when thus driven, by the absence of suitable hollow trees &c., to nest perforce elsewhere. The wood consists of some 500 to 600 acres, and is mostly composed of young trees, and contains but one piece of cliff, some 80 or 100 feet high, that overlooks the Derwent. This cliff is yearly tenanted by one pair of these Owls, which rear their young in one of its many recesses. The other pairs I have found nesting twice in rabbit-burrows; one had young, and the other eggs, when discovered. Again, the eggs were found laid upon the ground, somewhat concealed by the thick foliage of the lower branches of a fir. The fourth site chosen was an old nest of the Sparrow-Hawk, built upon a small fir, and some 15 feet only from the ground—in fact, just such a place as the Long-eared Owl often makes use of for similar purposes. Twice have its eggs been found laid in out-buildings; once upon the inner wall of a cow-byre in use, part of which was in ruins, thus admitting of easy ingress to the Owls; and once in a ruined house, partly used as a hen-house, partly as a coal-house. This outhouse was in close proximity to the woodman's cottage. Perhaps the most curious situation of all was when a pair took possession of a disused dog-kennel, which lay upon the lawn and within 25 or 30 yards of the farmer's back door. This bird makes no nest, merely scratching a hole in the earth when laying in holes of cliffs or under roots; and when making use of old nests, it does not seem to reline them at all. The number of eggs laid is generally three or four. I have never taken more than the latter number, and never heard of any one doing so in this district; in fact three eggs seem more commonly to be the full clutch than four. The last week in March or the first in April seems to be the average time when fresh eggs may be found."

The eggs are three or four in number, and much larger than those of the Barn-Owl; in fact the eggs of this bird cannot well be confused with those of any other species of British Owl. They are pure and spotless white, round in form; but the texture of the shell is much smoother than the Barn-Owl's and far more highly polished. They measure from 1·9 to 1·7 inch in length, and from 1·6 to 1·45 inch in breadth. As is the case with many raptorial birds, the first egg is often sat upon as soon as laid; so that young birds and eggs are found frequently in the nest together.

The young birds, covered with greyish-white down, remain in the nest some considerable time; afterwards they betake themselves to the neighbouring branches, where they are fed by their parents until the summer is well advanced. Here they utter their plaintive clicking note almost incessantly, attracting the attention of the parent birds and calling for food. The young of the Tawny Owl are easily reared in confinement, soon become very tame, and rank amongst the best birds for the aviary.

The typical form of the Wood-Owl (commonly called the Tawny Owl) has the colour of the upper parts reddish brown, spotted and vermiculated with darker brown and blackish, and with large subterminal white spots on the outer webs of the wing-coverts. The lower parts are buffish white, barred with brown and streaked with dusky brown. Legs feathered to the claws; bill greyish yellow; irides dark brown; claws whitish at base, darker towards the tip. The female resembles the male, but is larger.

The semi-arctic form (commonly called the Brown Owl) differs from the typical form in having the reddish brown of both the upper and under parts replaced by grey. In the tropical form the reddish brown is richer and darker, and the white parts are replaced by buff, and the dark vermiculations are blacker and more developed.

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STRIX OTUS.

LONG-EARED OWL.

(PLATE 7.)

Asio asio, *Briss. Orn.* i. p. 486 (1760).
Strix otus, *Linn. Syst. Nat.* i. p. 132 (1766); **et auctorum plurimorum**—*Vieillot, Naumann, Temminck, Schlegel, Sundevall,* (*Newton*), &c.
Bubo minor, *Gerini, Orn. Meth. Dig.* i. p. 85, pl. lxxxii. (1767).
Bubo vulgaris, *Gerini, Orn. Meth. Dig.* i. p. 85, pl. lxxxii. (1767).
Bubo otus (*Linn.*), *Sav. Syst. Ois. de l'Egypte*, p. 49 (1810).
Otus asio (*Briss.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 11 (1816).
Otus otus (*Linn.*), *Cuv. Règne An.* i. p. 328 (1817).
Otus europæus, *Steph. Shaw's Gen. Zool.* xiii. pt. 2, p. 57 (1826).
Otus vulgaris (*Gerini*), *Fleming, Brit. An.* p. 56 (1828).
Asio otus (*Linn.*), *Less. Man. d'Orn.* i. p. 116 (1828).
Otus communis, *Less. Traité*, p. 110 (1831).
Otus aurita, *Renn. ed. Mont. Orn. Dict.* p. 262 (1833).
Aegolius otus (*Linn.*), *Keys. & Blas. Wirb. Eur.* p. 143 (1840).
Otus verus, *Finsch, Journ. Orn.* 1859, p. 381.

The Long-eared Owl is generally distributed throughout the British Islands, being most common in those districts which abound in pine-forests. It has not been met with in Greenland, but is an accidental visitor to Iceland and the Orkney and Shetland Isles. It is not found in the Outer Hebrides, but breeds in Mull and Skye. It is distributed throughout the Palæarctic Region, and the Himalayas as far east as the shores of the sea of Ochotsk and Japan, but becomes extremely rare towards the arctic circle. It has been recorded from the Azores, the Madeiras, and the Canary Islands. It is a partial migrant; and on the east coast both of England and Scotland its numbers are increased by autumn arrivals from Scandinavia. In South Europe and North Africa it is principally a winter visitant, in Spain breeding only on the mountains, doubtfully recorded during the breeding-season from Algiers and Egypt, and hitherto observed only during passage or in winter in Greece. In Palestine and Asia Minor it probably breeds on the mountains and highlands, descending to the plains during winter only. In Turkestan it is found principally on migration, and winters in Persia and Afghanistan. The Himalayan birds winter in the plains of North India. In the valley of the Amoor, Japan, and in North China it is apparently a winter visitor. In the Nearctic Region it is represented by *S. americanus*, a species which approaches so near to the European one that only a practised eye can detect the difference.

The American bird has the upper parts more uniform in colour, the broad longitudinal streaks on the centre of the back and scapulars being finely mottled like the rest of the feather. On the underparts, especially on the feathers of the flanks, the transverse bars are straighter, broader, and more distinct in the American than in the European species. My collectors have not yet sent me skins from Siberia, nor have I seen an example from Archangel, where the bird is said to be very rare; but it is extremely probable that a pale northern form occurs.

The Long-eared Owl is an inhabitant of woodland districts, and is especially fond of spruce and Scotch firs; and since the planting of these trees has greatly increased it seems that the bird has extended its range in a corresponding degree. Large woods are not at all necessary to this species, and a pair will very frequently take up their abode in the small fir-plantations and in the clumps of trees on the borders of the forest. Large game-coverts are also favourite haunts of this bird; but it does not appear to frequent ruins, barns, or other buildings. It is a resident in this country, and is a strictly nocturnal bird, rarely straying from its roosting-place till dusk. When seen abroad in the daytime, however, it seems to be but little troubled by the glare of sunlight. Its retreat in the daytime is usually amongst the foliage of a dense tree close to the trunk, or in a clump of ivy, from which it sallies in search of food as the evening's dusk is falling. Its flight is like that of all the Owls, a buoyant but slow and wavering one; and although it is by no means a noisy bird, it repeatedly calls upon the wing. My friend Norgate informs me that he has heard this species uttering a note like the barking of a spaniel as it flew round him over the pine-woods; and he also tells me that it has another note, somewhat similar to the mewing of a young kitten, and which can be heard fully a mile off. He supposes this note to proceed from the young birds.

The food of the Long-eared Owl is largely composed of rats, mice, voles, and occasionally beetles and insects. It also takes the smaller birds—those species that are to be seen abroad late in the evening—catching them as it skims past them in the dusk. The Yellow Bunting is often to be seen on the hedgerows long after sunset; and its remains are often found both in the nest and also near the roosting-place of this Owl. It may also obtain many small birds by disturbing them from their perches in its nocturnal wanderings.

Of the migratory movements of the Long-eared Owl but little can be said. It seems not to journey in such large flocks as its congener the Short-eared Owl, although a man once told Norgate that he had seen as many as fifty fly from one tree in the daytime! It also makes its appearance on our coasts much later in the year, sometimes not until the beginning of December; but Mr. Cordeaux informs me that a pair of these birds were obtained at Spurn in 1881 during the last week in

August. This bird is also occasionally taken in the flight-nets on the Lincolnshire coast.

The Long-eared Owl is an early breeder: fresh eggs may be obtained by the second week in March; and the young are hatched by the end of April or beginning of May. It is doubtful if this bird ever builds its own nest. It usually takes possession of a deserted Crow's nest, sometimes a Wood-Pigeon's, and more frequently the deserted "drey" of a squirrel. Norgate informs me that at Didlington he was told that this bird nested habitually in the Herons' nests, and he himself saw quantities of pellets beneath the trees in which the nests were built. On one occasion he climbed up to a deserted nest in a pine tree, from which he looked down upon a deserted squirrel's "drey" in a neighbouring tree, and saw a pair of Long-eared Owls sitting side by side on the top, which was slightly flattened, and on which were laid seven eggs. At this nest were the remains of a Yellow Bunting. Dixon has found the eggs of this bird in old Wood-Pigeons' nests, amongst dense masses of ivy growing on trees. The selected nest does not appear to undergo much alteration, although many naturalists have asserted that it is lined with wool and feathers; but pellets are often found in it in great numbers. The eggs of this bird are from four to seven in number, generally five or six; and it appears that, as is the case with many other birds of this family, the eggs are sat on as soon as laid, as young birds and fresh eggs are seen in the same nest. The eggs of the Long-eared Owl are somewhat oval in form, possessing some little gloss, and are pure white in colour. They measure from 1·76 to 1·5 inch in length and from 1·35 to 1·26 inch in breadth. The young birds remain in the nest some weeks, and when able to fly usually take up their quarters in the adjoining branches, where they are fed for some time by the parents.

My friend Mr. A. W. Johnson writes to me as follows respecting the habits of the Long-eared Owl in Northumberland:—"The Long-eared Owl breeds somewhat sparingly, in suitable localities, throughout Northumberland and Durham—plantations of black firs, bordering upon moors or other open ground, being its favourite haunt. If this bird was only allowed to dwell in peace, and was not so commonly and erroneously regarded as vermin by the keepers, and destroyed accordingly, it would soon become a fairly common bird here. In proof of this, some years ago, in one district of Northumberland, where the birds were undisturbed, my friend Isaac Clark, of Blaydon, used to find large numbers of their nests for several consecutive seasons. A letter of his just received (25th August 1882) proves how common they were in 1871. He writes, 'In answer to your note about the Owls breeding, they always repair an old Wood-Pigeon's or Magpie's nest. The earliest date I have found a nest containing young was one which had three young birds and two rotten eggs in it upon the 1st April 1871. On the same day we took *seven* other nests with eggs.' This Owl seems *always* to make use of the old nests of either Carrion-Crow, Wood-Pigeon, or Magpie, and never, so far as I have been able to discover, builds a wholly new nest for itself, being content with repairing the other nests—if a Crow or a Magpie's be the one selected, by flattening them down a little, and sometimes by the addition of a few sticks to an old Wood-Pigeon's when the original structure was too slight. They are very early breeders, eggs being sometimes found when snow is still upon the ground. The earliest eggs I have known were taken the last week in February; but the usual time of laying is from the beginning of March until the first week in April. The bird, when incubation has commenced, sits very closely indeed, often not leaving the nest until the climber is within 6 or 8 feet of it. This makes the taking of their eggs very hard work, as any old nest may contain eggs; and as no amount of knocking the trunk below, or firing of missiles at the nest above, is certain to start the Owl if there, there is nothing for it but climbing *every* tree that holds an old nest *that looks likely*; and as these firs usually have a vast number of old nests of one sort or another in them, the work soon becomes very hard, and (unless successful early on) an enthusiastic oologist of not *too* mature an age is necessary, or the abandonment of the search in disgust is more than probable. There seems to be no fixed height for the nest preferred; the lowest I have seen was some 12 feet above the ground, and the highest some 40 or 45; but usually 20 to 30 is the height; when the trees become very high, the Owls seem to leave them for lower trees with thicker under-branches. The number of eggs laid is from three to six; many nests contain four; five is also commonly found, whilst a six clutch is not a great rarity. I have known one nest that contained six young ones (in various stages of growth), and several with five; but such successful hatchings are not common; more frequently three to four young ones are found, and often also one or more addled eggs are in the nests with the young birds."

The Long-eared Owl has the general colour of the upper parts ochraceous buff, mottled and vermiculated with brown of various shades; the ear-tufts large, and composed of black feathers edged with buff. The underparts are of a lighter ochraceous buff, with broad streaks of deep brown and faint transverse bars of paler brown; beak and claws dark horn-colour; irides rich orange-yellow. The female resembles the male, but is slightly more rufous in general coloration.

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STRIX TENGMALMI.

TENGMALM'S OWL.

(PLATE 7.)

Strix tengmalmi, *Gmel. Syst. Nat.* i. p. 291 (1788); **et auctorum plurimorum**—*Temminck, Naumann, Vieillot, Schlegel, Sundevall, (Newton), (Salvadori), (Shelley), (Sharpe & Dresser).*
Strix dasypus, *Bechst. Naturg. Deutschl.* ii. p. 972 (1805).
Athene tengmalmi (*Gmel.*), *Boie, Isis,* 1822, p. 549.
Ægolius tengmalmi (*Gmel.*), *Kaup, Natürl. Syst.* p. 34 (1829).
Noctua tengmalmi (*Gmel.*), *Cuv. Règn. An.* i. p. 345 (1829).
Ulula tengmalmi (*Gmel.*), *Bp. Oss. Reg. An. Cuv.* p. 53 (1830).
Syrnium tengmalmi (*Gmel.*), *Eyton, Hist. Rarer Br. B.* p. 90 (1836).
Scotophilus tengmalmi (*Gmel.*), *Swains. Classif. B.* ii. p. 217 (1837).
Nyctale tengmalmi (*Gmel.*), *Bp. Comp. List B. Eur. & N. Amer.* p. 7 (1838).
Nyctale richardsoni, *Bp. Comp. List B. Eur. & N. Amer.* p. 7 (1838).
Strix frontalis, *Licht. Abh. Akad. Berlin,* p. 430 (1838).
Nyctale dasypus (*Bechst.*), *Gray, List Gen. B.* p. 6 (1840).
Nyctale tengmalmi (*Gmel.*), var. richardsoni, *Ridgw. Am. Nat.* 1872, p. 285.
Nyctale funerea (*Linn.*), *apud Bonaparte, Schlegel, Taczanowski,* &c.

Tengmalm's Owl is an accidental visitor to the British Islands. At least a couple of dozen instances of its occurrence have been recorded, three of them in Scotland, but none in Ireland. Some of these alleged occurrences are myths; for example, the specimen killed near Horsham, and now in Mr. Borrer's collection, I found on examination to be a Little Owl (*Noctua noctua*),whilst some have undoubtedly escaped from captivity. On the other hand, it is quite possible that some of the recorded instances of the capture of the Little Owl in our islands refer to this species.

The migrations of Tengmalm's Owl are generally confined to a descent from the mountains, where it breeds, to the plains; but there can be little doubt that in certain seasons some individuals extend their migrations much further, as it has several times occurred in the autumn on Heligoland, whence it doubtless crosses the sea to our islands.

Tengmalm's Owl is a circumpolar bird. At the time Messrs. Newton and Dresser wrote on this species its distribution in Siberia was unknown. Some writers, amongst whom are Baird, Brewer, and Ridgway, attempt to make the American bird subspecifically distinct from the European one, on the ground of there being more of the brown spotting on the plumage, especially on the feet and under tail-coverts—a feature characteristic of immature birds. I have been unable to detect any difference between examples from the Palæarctic and Neartic Regions beyond the fact that American birds are slightly darker than Palæarctic ones, and may have the feathers on the feet not so pure a white. There does not even seem to be an Arctic form; examples sent by my collector from Krasnoyarsk scarcely differ from skins from South Sweden. This species breeds in the pine-forests of Europe and Asia south of the Arctic circle. In Northern France, Germany, Southern Scandinavia, and Central Russia it is principally found in winter. It is said to breed in the Alps and the Carpathians; but there is no reliable authority for its occurrence either in the Pyrenees or the Caucasus. In Lapland it breeds up to lat. 68°; in the Ural Mountains it has not been found further north than lat. 59°; but Dr. Finsch obtained it on the Obb in lat. 61°. Sharpe and Dresser copy Shelley's error in assigning Egypt as a locality for this species* On the American continent its range is very similar, extending during the breeding-season nearly up to the Arctic circle from Alaska to Labrador. It occasionally appears in winter in the most northerly of the United States.

Tengmalm's Owl has no very near ally in Europe; but on the American continent it is represented in the central and southern portions of the Nearctic Region by *Strix acadica* (the Saw-whet Owl), a somewhat smaller bird, having much less white on the upper parts, with the forehead streaked instead of spotted with white, and having only three white bars instead of five on the tail. The capture of a bird of this species was recorded in the 'Zoologist' (1860, p. 7104) by Sir W. Milner, not far from Beverley in Yorkshire. The species may have been wrongly determined; or, if the identification was correct, it may have been an escaped bird.

Tengmalm's Owl is principally confined to the pine-region; and very little is recorded of its habits. South of the Arctic circle it is said to be a strictly nocturnal bird. Wheelwright states that he rarely went out into the forest near Quickjock on any night without seeing this pretty little Owl hawking after its prey. In that latitude, however, there is scarcely any difference between night and day. For some weeks in summer the sun never sets, and during the whole twenty-four hours brilliant sunshine is the rule rather than the exception. All that can be said is that Tengmalm's Owl does not appear to be incommoded by the light, but nevertheless prefers the midnight sun to that of midday.

This bird is a very early breeder; and even in lat. 67° Wheelwright's eggs were all taken between the 2nd and the 13th of May; whilst at Muoniovara, a degree still further to the north, Wolley obtained eggs between the 18th of May and the 2nd of June, and received them from a little further north between the 1st and the 27th of June. Wheelwright describes its call-note as a very musical, soft whistle, never heard except in the evening and at night. Its food consists of mice, beetles, and small birds. Wheelwright says that it is a bold voracious little bird, and that one night he shot a female in full chase of a lemming on a frozen lake.

Tengmalm's Owl is said not to build any nest. The eggs are laid in hollow trees; and Wolley obtained some which had been laid in one of the hollowed-out logs which are closed at each end, with a hole cut in the side, to induce the Golden-eye Ducks to breed in them. A favourite nesting-place appears to be in the deserted nest of the Black Woodpecker. The number of eggs varies from four to seven. They are pure white in colour, smooth, and differ somewhat in shape, some being elongated, others almost round. They vary in length from 1·3 to 1·25 inch, and in breadth from 1·1 to 1·05 inch.

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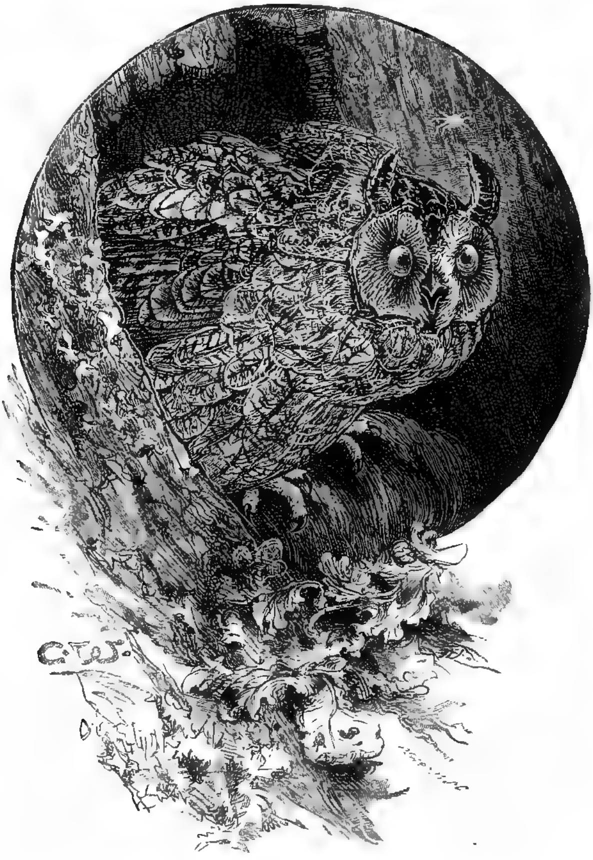
* In the Cat. B. Brit. Mus. ii. p. 136, Sharpe includes the specimen upon which this statement was founded in the list of examples of *Carine glaux*.

Tengmalm's Owl has the upper parts brown spotted with white, and the underparts white barred with reddish brown. The beak is yellowish white, claws black; irides yellow. The female resembles the male, but is slightly larger and has the white less developed. Young birds are much darker than adults, and have the white spots almost confined to the wings and tail. It is a slightly larger bird than the Little Owl, from which it may also easily be distinguished by the tarsus and feet being thickly plumed to the claws. The Little Owl also has the underparts longitudinally streaked instead of barred.



LONG-EARED OWL.

STRIX BRACHYOTUS.

SHORT-EARED OWL.

(PLATE 7.)

Strix noctua major, *Briss. Orn.* i. p. 511 (1760).
Stryx accipitrina, *Pall. Reise Russ. Reichs*, i. p. 455 (1771).
Noctua minor, *Gmel. Nov. Comm. Petrop.* xv. p. 447, pl. 12 (1771).
Strix brachyotus, *Forst. Phil. Trans.* lxii. p. 384 (1772); **et auctorum plurimorum** —*Gmelin*, *Wilson*, *Vieillot*, *Naumann*, *Temminck*, *Roux*, *Swainson*, *Richardson*, *Audubon*, *Schlegel*, *Yarrell*, *Sundevall*, (*Gould*), (*Gray*), (*Kaup*), (*Jerdon*), (*Gurney*), (*Hume*), (*Finsch*), (*Swinhoe*), &c. &c.
Strix arctica, *Sparrm. Mus. Carls.* iii. pl. 51 (1788).
Strix palustris, *Bechst. Naturg. Deutschl.* ii. p. 344 (1791).
Strix tripennis, *Schrank, Fauna Boica*, i. p. 112 (1798).
Strix caspia, *Steph. Shaw's Gen. Zool.* vii. pt. 2, p. 272 (1809).
Otus microcephalus, *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 11 (1816).
Strix brachyura, *Nilss. Orn. Suec.* i. p. 62 (1817).
Otus brachyotos (*Forst.*), *Steph. Shaw's Gen. Zool.* xiii. pt. 2, p. 57 (1826).
Strix sandwichensis, *Bloxh. Byron's Voy. of H.M.S. 'Blonde,' App.* p. 250 (1826).
Brachyotus palustris (*Bechst.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 7 (1838).
Asio brachyotus (*Forst.*), *Macgill. Brit. Birds*, iii. p. 461 (1840).
Aegolius brachyotus (*Forst.*), *Keys. & Blas. Wirb. Eur.* p. xxxiii (1840).
Asio sandvicensis (*Bloxh.*), *Blyth, Ibis*, 1863, p. 27.
Asio accipitrinus (*Pall.*), *Newt. ed. Yarr. Brit. B.* i. p. 163 (1872).
Strix ulula, *Linn. apud Boddaert*, *Gmelin*, *Pallas*, *Lesson*, &c.

The Short-eared Owl is a regular winter visitor to Great Britain and Ireland, and has not yet been completely exterminated from the fens, where a few still breed. It is generally distributed on moorlands and marshes in the north of England, Scotland, the Western Isles, the Orkneys, and the Shetlands.

Outside our islands its range is almost cosmopolitan. It appears to be only a summer visitor to Holland, North Germany, Scandinavia, and North Russia, passing through France on migration. In South Europe it is principally known as a winter visitant; but in South Russia and the Caucasus many apparently remain to breed. It probably also breeds in some parts of Africa, although its distribution there is comparatively little known. It has been recorded from several parts of North Africa, is a regular winter visitant to North-east Africa, and an example has been obtained in Natal. Eastwards it is a summer visitor throughout Siberia, passing through Persia, Turkestan, and Japan on migration, and wintering in India and Burma. It does not appear to have occurred in Australia, or in any of the islands of the Southern Pacific; but it is said to be a resident on the Sandwich Islands. On the American continent it is a summer visitor to Alaska, Canada, and Greenland up to about lat. 70°, wintering throughout the United States, where a few remain to breed, some passing still further south to Central America, the West Indies, and tropical South America. It has been found throughout South America, breeding at Buenos Ayres and Patagonia and probably throughout the Chilian subregion. The South-American birds are probably also partial migrants, and in their winter-quarters may meet the birds from North America.

The habits of the Short-eared Owl are very different from those of any other British species, and thus lend an additional interest to the bird. Unlike the other members of this gloom-loving family of birds, the present species rarely in this country frequents woods or plantations, nor does it haunt ruins, barns, or hollow trees. Its home is in the exposed and open parts of the country, the broad-stretching meadow-lands and turnip-fields, commons and dense furze-brakes, sedgy marshlands and the flat uninviting and monotonous fens. From its peculiar habit of frequenting the open, the Short-eared Owl is perhaps more often seen than any other Owl; and it is from this circumstance that the bird is considered to be numerous and widely diffused. Although generally a migratory bird, a few are permanently resident in suitable districts—where it was formerly a far more common resident than it is at the present day, being now only represented in the summer by a few straggling pairs.

The great autumn migration of the Short-eared Owl takes place in October, from the second week to the end of the month, the time during which the Woodcock also makes its appearance. From this circumstance and from the fact that both the birds choose similar haunts upon their arrival here, the Short-eared Owl has gained for itself the name of "Woodcock-Owl." Short-eared Owls migrate in companies, and, in fact, are more or less gregarious during the whole of the winter, as many as twenty birds having been flushed within a comparatively small space of ground. The flight-nets on the Lincolnshire coast unerringly proclaim the advent of this Owl upon our shores; and during the migration period it is one of the commonest birds taken in them. Short-eared Owls migrate at night; and they do not seem to fly at any great height above the waves whilst pursuing their journey, for these nets are but a few feet from the surface of the sea. Strangely enough, however, their companion the Woodcock is seldom, very seldom taken in the nets, leading us to suppose that it flies much higher through the air and drops suddenly down from above as soon as the shore is reached. Upon its arrival here the Short-eared Owl betakes itself to turnip-fields, stubbles, the sides of hedgerows, or the tall herbage on the banks of a stream, and dry ditches overgrown with coarse vegetation. Upon being flushed it flies quickly off with undulating motion, swaying its body from side to side alternately, much after the manner of the smaller Gulls. This Owl is perhaps less incommoded by the light than any other species, and may be seen quartering the ground in search of food at all hours of the day. When flushed it will not unfrequently rise to a considerable height in the air and then fly steadily away, without displaying any of that wavering undecided action so characteristic of the Barn-Owl when rudely sent into the sunshine.

The food of the Short-eared Owl is composed of small mammals, small birds, coleopterous insects, and various species of surface-feeding fish; its favourite and usual fare, however, is doubtless composed of field-mice and the various species of short-tailed voles. It will glide in noiseless airy flight above the marshy wastes, or quarter the stubbles and meadow-lands in search of its food, sail swiftly down the hedgerow-sides and take a Warbler from the spray, or search the old weedy watercourses for rats. It will also now and then strike the Bat as it sallies from its hole in the dusk of the evening, or prey upon the larger beetles that come abroad at night's approach. Mr. Low states that the remains of Red Grouse and Plovers have been found in its nest; but such, certainly, if captured at all, were possibly only young or weakly birds. This species is one of the most deadly enemies of mice, rats, and, in Scandinavia, of lemmings. During the great plagues of mice that have from time to time occurred in various parts of Britain, notably in the Forest of Dean in Gloucestershire, the Short-eared Owl has flocked in numbers to the place, and played a principal part in extirpating the unwelcome and destructive hordes. Too often, however, the poor harmless Owl is shot down by the thoughtless farmers or ignorant gamekeepers, who foolishly imagine they are ridding their domains of a pest, although in reality they are taking the life of one of their most valuable friends.

It is very possible that the Short-eared Owl pairs for life. Unlike the other British members of this group of birds, that seek a covered site for their nests, the Short-eared Owl always rears its young upon the ground, and, most curiously enough, in an exposed and open nest. Its breeding-grounds are the marshy fens of the low-lying eastern counties, and in the north the broad expanses of heath on which the Harriers and the Grouse rear their young. In the southern counties the draining of the fenlands has done much to decrease its numbers in the breeding-season, and at the present time but few pairs are to be met with. Its eggs have been taken in the first week in April; but May is probably its usual laying-season, the young being abroad by the 12th of August. In the early summer of 1881 (May) I had the good fortune to examine the nest of this bird, to procure its eggs, and gain some little personal knowledge of the bird itself. Howard Saunders and I went down to the Norfolk Broads under the guidance of our mutual friend Mr. A. H. Evans. The moment we arrived at the little inn close to Hickling Broad I was struck with the exact similarity of the scenery to that of Horster Mere in Holland, where

I went to see the breeding-place of the Spoonbills and Cormorants. A winding river passes through lakes and marshes down to Yarmouth; and in the deep channel boats heavily laden sail up and down, whilst on the shallow broads and in the narrow lanes cut through the marshes we were punted along in little boats with ease. When we were near enough to the sea, the "denes" or sandhills that skirt the coast formed a conspicuous object on the horizon.

The marshes (or "meshes" as the marshmen call them) are covered over with reeds, with a thick undergrowth of *Juncus* and *Carex*. Most of the marsh is accessible with wading-boots; and in many places we found shooting-boots sufficient. The reeds are regularly cropped, and sold for thatching and as a substitute for straw for cattle. Here and there willows are found, sometimes in sufficient quantity to make it worth while to employ women and children in peeling twigs for basket-making. Fishing is carried on in some of the broads; and in winter these sheets of water are a great resort for Wild Ducks and other water-birds. Great numbers of half-tame Swans breed on most of the marshes.

In the evening Joshua, the old fenman whom Mr. Evans had chartered as guide, took us to Hickling Marsh, about a square mile in extent. As we walked along the lanes between the high hedges, Corn-Buntings and Sedge-Warblers were the principal songsters. The part of the marsh which we visited had lately been in the hands of a farmer who had succumbed to the bad harvests; and the reeds were cut and lying in heaps on the ground. For one of these heaps or reed-cocks Joshua steered by a somewhat circuitous route to avoid the dykes, which were generally just too wide to jump across with safety. Peewits and Redshanks got up as we went along; but we kept steadily to our goal. At length, after a three-mile walk, during which the daylight had perceptibly diminished, Joshua pointed out a heap of cut reeds as "*the place.*" We advanced cautiously to about half a dozen yards from the heap, when rapidly but silently rose before our admiring eyes a Short-eared Owl, displaying her nest with six eggs conspicuously placed at the foot of the "reed-cock" and half sheltered by it. The bird looked very large as she rose in the evening light and, after a short flight, turned back and wheeled in circles round us. In half a minute she was joined by her mate; and the two flew round as long as we remained near the nest. Sometimes she hovered at a considerable height perpendicularly over her nest, as if she would assure herself that we had not taken her eggs, and as if she could only see them when she was directly above them. When she had apparently adjusted the focus of her great eyes upon them, she fluttered her wings in a very agitated manner for a few seconds. Whether this peculiar movement was the result of her great anxiety to return to cover them from the chill evening air, or an active expression of her delight at seeing them still in the nest, or an attempt to attract our attention in order to lure us away from the spot, it was difficult to determine. The eggs were extremely conspicuous from one side of the heap of rushes when the bird was off the nest; but so long as she sat close it might very easily be passed by without notice. Both birds were quite silent the whole time. Joshua told us that when the nest was first found there were seven eggs in it, but that the man who found it had broken one. The eggs were considerably incubated. There was not much attempt at a nest, not more than the Peewit makes. The ground seemed to be trodden into a hollow, which was lined with a few dry broken reeds and sedges. The reeds were lying in a heap on the ground; and in the place selected for the nest the thick cut ends slightly overhung the base of the heap and formed some shelter over the nest on one side. We found a second nest on the following day containing six fresh eggs. It was in a part of the marsh where there were very few reeds, the ground being covered with *Carex* and *Juncus*. This nest was very similar to the one we found on the previous day, and was lined with flat leaves of *Carex*, with a feather or two, and was surrounded with a few slender willow bushes. The bird made a harsh scream as she flew up, but went right away, and we saw her no more.

This species lays from four to seven eggs; and has been said, on the authority of Hutchins, cited by Richardson in the 'Fur-countries of North America,' to lay as many as ten or twelve. In shape they are scarcely so round as those of the Tawny Owl, and much smaller, creamy white in colour, and possess but little gloss. The eggs may easily be confounded with those of the Long-eared Owl; and certain specimens are not easy to distinguish from eggs of the Hawk Owl. They measure from 1·65 to 1·5 inch in length, and from 1·31 to 1·2 inch in breadth.

The Short-eared Owl, like nearly all other Owls and most other Palæarctic birds which have a wide range, is subject to considerable variation in colour. Besides the typical plumage there are two "phases" of plumage—a *light* "phase" and a *rufous* "phase." The word *phase*, as restricted to the various plumages of the Owls, is a very objectionable one. These so-called phases are climatic races of exactly the same character as the climatic races of Tits, Nuthatches, Dippers, or Shrikes, and of the same subspecific value. The typical plumage is that of a temperate climate with a moderate allowance of rain and sunshine. The so-called light "phase" is the Arctic plumage, geographically coexistent with, and in all probability produced, either directly or indirectly, by a large allowance of sunshine and a small supply of rain. In this plumage the buff ground-colour of the upper parts and of the lower portions of the underparts is replaced by almost pure white, whilst the brown spots or streaks are darker and greyer than in the typical form. This subspecies, connected with the typical form in intermediate climates by intermediate forms, was named by Pallas *Strix ægolius*, and ranges from Archangel to Kamtschatka. It probably reappears in the Arctic regions of America; but I have not been able to examine a skin of an adult male from that district. The so-called rufous "phase" is the tropical plumage, which is known as *Strix cassini*, a climatic race, apparently most developed where there is a deficiency of sunshine and an excessive rainfall, as in the Falkland Islands and the Eastern Himalayas. In this form the buff ground-colour is more rufous, and the brown spots and streaks are not so grey as in the typical form. In the females the difference between the two extreme forms is much less pronounced, and in the young in first plumage it is scarcely observable. The latter all belong to the rufous form, which we must therefore accept as the oldest, or least changed from the postglacial ancestors. In the Galapagos Islands the Short-eared Owls appear to have been so long isolated from their confrères as to have become specifically distinct. *S. galapagoensis* is said always to differ from the rufous form of *S. brachyotus* (which it otherwise greatly resembles) by having the legs streaked. It seems to be the only very near ally of this almost cosmopolitan species which is deserving of specific rank.

The general colour of the typical form of the Short-eared Owl is dark buff. The wings and tail are transversely barred with dark brown; the rest of the plumage, except the thighs and under tail-coverts, is broadly streaked longitudinally with dark brown; bill and claws nearly black; irides bright yellow. In the Arctic form the dark buff is replaced by nearly white, except in the centre of the back, which is suffused with rufous.

Genus NOCTUA.

The Little Owls were first separated from the genus *Strix* by Gerini in 1767, in his 'Ornithologia Methodice Digesta,' i. p. 87, under the name of *Noctua*, a name which was afterwards adopted (in 1810) by Savigny. Neither of these ornithologists indicated any type; but inasmuch as the Little Owl is the *Noctua vulgaris* of Gerini and the *Strix noctua* of Scopoli, it has every right to be considered the type.

The Little Owls may be distinguished from all other Owls by the nostrils being placed in a projection formed by an inflation of the cere. Their habits do not differ from those of the other Owls; but their food is more insectivorous. Their eggs are pure white in colour.

The genus *Noctua* contains upwards of fifty species, which are distributed over the whole world—principally confined to the tropical regions, a few species being found in the Nearctic and Palæarctic Regions. Only two or three are European, of which but one has been found in the British Islands.

NOCTUA NOCTUA.

LITTLE OWL.

(Plate 7.)

Strix noctua minor, *Briss. Orn.* i. p. 514 (1760).
Noctua vulgaris, *Gerini, Orn. Meth. Dig.* p. 87, pl. lxxxvi. (1767).
Strix noctua, *Scop. Ann. I. Hist. Nat.* p. 22 (1769); **et auctorum plurimorum**—*Naumann*, (*Bonaparte*), (*Gray*), (*Schlegel*), (*Gould*), (*Sharpe*), &c.
Strix nudipes, *Nilss. Orn. Suec.* i. p. 68 (1817).
Strix psilodactyla, *Nilss. Skand. Faun.* 1st ed. p. 88 (1824).
Carine noctua (*Scop.*), *Kaup, Natürl. Syst.* p. 29 (1829).
Surnia noctua (*Scop.*), *Bonap. Oss. Regn. An.* i. p. 48 (1830).
Noctua nudipes (*Nilss.*), *Gould, B. Eur.* i. pl. 48 (1837).
Scotophilus nudipes (*Nilss.*), *Jard. Brit. B.* i. p. 274 (1838).
Athene noctua (*Scop.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 6 (1838).
Syrnia psilodactyla (*Nilss.*), *Macgill. Brit. B.* iii. p. 417 (1840).
Noctua veterum, *Schl. Mus. Pays-Bas, Striges,* ii. p. 28 (1862).
Noctua minor, *Degl. & Gerbe, Orn. Eur.* i. p. 122 (1867).
Strix passerina, *Linn. apud Gmelin, Boie, Cuvier, Temminck, Roux, Yarrell, Brehm, Lesson, Selby, Stevenson* *

The Little Owl is an accidental visitor to England and Wales, and may be much rarer than its recorded occurrences would lead us to suppose. Two examples in Mr. Borrer's collection must probably be erased from the list, as he informed me that he subsequently ascertained that two birds of this species were released from captivity by a gentleman living in the neighbourhood where they were caught. As this species is very frequently sent alive to England, it is impossible to say how many of the score or more recorded examples may not have had a similar origin.

The Little Owl is a resident throughout the whole of Europe south of Scandinavia. In Northern Africa it is represented by a very nearly allied species, *Noctua glaux*; but examples from Greece are paler than the northern form, approaching *N. glaux*; and in Asia Minor both species occur, together with intermediate forms. East of the Ural Mountains another nearly allied species occurs, *N. bactriana,* having the toes thickly feathered almost to the claws instead of only covered with hairy bristles, and having also a much shorter tarsus. This species extends as far east as Northern China.

The Little Owl is by far the commonest Owl in the south of Europe, and one that is both seen and heard, not only in the evening but also in broad daylight. I first made its acquaintance near Smyrna, where it was very common. We did not very often see it; but now and then we caught a glimpse of it, flying from one tree to another, near the villages that nestled on the mountain-sides overlooking the flat plains through which the river winds amongst the olive-groves and vineyards. The flight of the Little Owl reminded me very much of that of a Bat. It was not an undulating flight, but a steady slow beating of the wings without any apparent exertion; and yet there was a butterfly-like uncertainty about it, as if it continually changed its mind and slightly altered its course. The flight was very silent, occasionally very rapid; and I remember seeing it skim over a tree like a Partridge. In Holland I once watched a Little Owl flying in the garden behind the inn at Valconsward. A boy had caught it on the nest, and brought it to us with one egg and three young ones—the latter only a few days old, and covered with short pure white down not unlike the fur of a mole. We did not want the old bird; so we let her go in the garden. She had scarcely got more than forty yards from us when she was pursued by a mob of Starlings, Swallows, and other birds, from whom she soon took refuge in a chestnut-tree, to the evident annoyance of a Chaffinch, who immediately began to *spink spink* in a most excited way. At Athens it was very common on the Acropolis, and was evidently breeding in holes in the rocks and ruins. In the Parnassus we often heard its curious note *cuc-koo-vah*^{l}*-ee, cuc-koo-vah*^{l}*-ee,* and were told that it remained there all the year. It feeds on small birds, mice, grasshoppers, cockchafers, moths, beetles, &c., which it catches both on the wing and on the ground. It may be seen perched on a tree, a rock, or on the roof of a house. It is a somewhat early breeder ; and fresh eggs may be obtained from the middle of April to the middle of May. The situation of the nest, which is a mere scratch round of whatever rubbish may be accidentally collected on the spot, is varied. Sometimes it is in a hollow tree, sometimes in a cleft of a rock, sometimes in the roof of a house ; and I have seen it under the roots of a tree. The number of eggs varies from four to six; they are pure white in colour, oval in form, and measure from 1·4 to 1·35 inch in length, and from 1·15 to 1·08 inch in breadth.

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* The number of ornithologists who have confounded the Little Owl with the Pygmy Owl makes it necessary to add to the name of the latter bird *Linn.* nec *Gmel.* in order to avoid the possibility of error. This confusion has arisen from the generally insufficient and frequently incorrect diagnoses of Linnæus and other writers, who attempt to describe a species in a couple of lines, and thus pave the way for future complications in its synonymy.

The Little Owl has the upper parts greyish brown, striped on the head and spotted on the back and wings, and barred on the tail with white. The underparts are white, broadly streaked with brown. Irides and bill yellow, claws black. The female is a slightly larger and paler bird than the male. Young birds are somewhat more dingy and less grey in colour.

The Pygmy Owl, *N. passerina,* has been recorded as a British bird, but on unsatisfactory evidence. It is a much smaller bird (wing only 4 inches instead of 6 inches), with a more rounded wing (first primary not much more than half the length of the second).

Genus SURNIA.

The Hawk Owls were first separated from the genus *Strix* by Duméril in 1806, in his 'Zoologie Analytique,' p. 34, under the name of *Surnia*; and the Snowy Owl was separated in the year 1826 by Stephens, in Shaw's 'General Zoology,' xiii. pt. 2, p. 62, under the name of *Nyctea*. In compounding a genus out of these two genera, the earliest of them, which is apparently unobjectionable, has been selected; and its type will be *Surnia funerea*.

The Hawk Owls have no operculum, nor are their nostrils inflated—characters which separate them from all other genera, except *Bubo* and *Scops*, from which they may be distinguished by the absence of any longitudinal streaks on the underparts, and by the absence of any conspicuous ear-tufts.

The Hawk Owls are confined to the Arctic regions, and are consequently less nocturnal in their habits; otherwise they differ little from the other Owls, in their mode of flight, food, and nesting-habits. Their eggs are pure white in colour. The Hawk Owls are circumpolar birds. Only two species are contained in the genus, both of which are accidental visitors to the British Islands.

SURNIA NYCTEA.

SNOWY OWL.

(PLATE 7.)

Strix alba freti-hudsonis, *Briss. Orn.* i. p. 522 (1760).

Strix nyctea, *Linn. Syst. Nat.* i. p. 132 (1766); **et auctorum plurimorum** — (*Thompson*), (*Macgillivray*), (*Selby*), (*Gould*), (*Degland*), (*Gerbe*), *Temminck*, *Naumann*, *Schlegel*, *Sunderall*, &c.

Aluco diurnus, *Gerini, Orn. Meth. Dig.* i. p. 89, pl. lxxxxiii. (1767).

Strix nivea, *Thunb. Sv. Akad. Förh.* 1798, p. 184.

Strix candida, *Lath. Ind. Orn. Suppl.* p. xiv (1801).

Strix erminea, *Steph. Shaw's Gen. Zool.* vii. pt. 1, p. 251 (1809).

Noctua nyctea (*Linn.*), *Cuvier, Règne An.* i. p. 332 (1817).

Nyctea erminea (*Steph.*), *Steph. Shaw's Gen. Zool.* xiii. pt. ii. p. 63 (1826).

Surnia nyctea (*Linn.*), *James. ed. Wils. Am. Orn.* i. p. 92 (1831).

Nyctia candida (*Lath.*), *Swains. Classif. B.* ii. p. 217 (1836).

Nyctea nivea (*Thunb.*), *Gray, Gen. B.* i. p. 34 (1845).

Leuchybris nyctea (*Linn.*), *Sundev. Meth. Av. Tent.* p. 106 (1872).

Nyctea scandiaca (*Linn.*), *apud Newt. ed. Yarr. Brit. B.* i. p. 187 (1872).

Nyctea scandiaca (*Linn.*), *apud Ridgway*, var. arctica (*Bart.*), *Ridgw. N. Amer. B.* iii. p. 70 (1874).

Leuchybris scandiaca (*Linn.*), *apud Meves, Öfv. Kongl. Vet.-Ak. Förh.* 1879, p. 39.

The Snowy Owl is a regular, though uncertain, visitor to the British Islands. Scarcely a year passes without a record of its capture in some part of Scotland; but in England and in Ireland it is less regular in its appearance. The Snowy Owl belongs to the class of "Gipsy migrants," who have no settled home in winter. It breeds on the tundras beyond the limit of forest-growth, or in similar climates at high elevations in less northerly latitudes, and it only leaves these breeding-grounds in consequence of the scarcity of food caused by exceptional cold. It is consequently only a partial migrant. Some remain throughout the winter in the frozen north; others retire to a greater or less distance during a storm or a harder frost than usual, and return when it is over. Some of these often wander very far in search of food; and it is only when the winters in the Arctic Regions are exceptionally mild that the outside stragglers do not reach our islands. In the Orkneys and the Shetlands scarcely a season passes without birds occurring, usually after northerly gales; whilst on the mainland it has been obtained in most of the Highland counties and those bordering the Firth of Clyde. The same may be said of the Hebrides and Western Isles, where, according to Gray, it is regarded as an almost regular spring visitant; but probably an irregular late winter guest would be more correct. In England, although of not quite such frequent occurrence, it has without doubt occurred thrice in Northumberland, once at least in Yorkshire, eight or nine times in Norfolk, and once in Suffolk. In Ireland its recorded occurrences are almost as numerous, and it has been met with in most counties, except in the extreme west.

The Snowy Owl is a circumpolar bird, breeding principally within the Arctic circle. It is common in some parts of Greenland, and was found breeding in Grinnell Land by Capt. Feilden, as far north as lat. 82° 33′. It is found in Iceland usually during winter, more rarely in summer, and has been found several times on the Faroes. It breeds throughout Northern Europe, including Nova Zembla, but in Spitzbergen is said only to occur as an occasional straggler. In winter it accidentally strays as far south as Holland and Belgium, and has once occurred in Northern France. In Pomerania it occurred in considerable numbers during the winters of 1858–59 and 1865–66; and, on the authority of von Pelzeln, it has once occurred in Lower Austria. In Asia it is an inhabitant of the northern portions of the continent, sometimes straying in winter as far south as South Siberia, Turkestan, Afghanistan, and Mongolia. On the American continent the Snowy Owl breeds in the extreme north, straggling south in winter to almost all parts of the States, and has more than once been observed in the Bermudas. It has been known to occur as far south as Texas, where a single specimen was obtained by Dr. Heermann.

Ridgway, in the third volume of the 'North American-Birds,' separates the Snowy Owl into two races, one inhabiting the Old and the other the New World. The character by which these two races are distinguished is said to be the dusky bars, which in the Palæarctic species are "sparse, narrow, and umber-brown," and in the Nearctic species "more numerous, broader, and clear brownish black." These differences, however, are probably due to individual variation; for birds from Europe are found to match exactly birds from the American continent. Sharpe, in his 'Catalogue of Birds,' vol. ii. p. 127, points out that the amount of feathering on the toes of European birds is much greater than on American specimens; but this is probably due to a seasonal change, as is the case with the Willow-Grouse.

Some writers have supposed that the white birds are the old and the more spotted birds the young; but what little evidence there is points to the existence of two races of Snowy Owls, a white race and a dark race, which alter little with age. Young in first plumage are said to show quite as marked a variation as adults; and birds kept in confinement are said to retain the original character of their plumage year after year, though the dark markings do to some extent decrease in size and number with age.

The Snowy Owl is a bird of the tundra; and its home is on the fjelds of Lapland, the tundras of Russia and Siberia, and the prairies of Arctic America. Although its breeding-range extends over nearly twenty degrees of latitude, its nest is never found within the limit of forest-growth.

The history of animal and vegetable life on the tundra is a very curious one. For eight months out of the twelve every trace of vegetable life is completely hidden under a blanket of snow six feet thick, which effectually covers every plant and bush; trees there are none to hide. During at least six months of this time animal life is only traceable by the footprints of a reindeer or a fox on the snow, or by the occasional appearance of a Raven or a Snowy Owl wandering beyond the limit of forest-growth, whence for the most part they have retired for the winter. For two months in midwinter the sun never rises above the horizon, and the white snow reflects only the fitful light of the moon, the stars, or the aurora. Early in February the sun just peeps upon the scene for a few minutes at noon and then retires. Day by day he prolongs his visit more and more, until February, March, April, and May have passed, and continuous night has become continuous day. Early in June the sun only just touches the horizon at midnight, but does not set any more for some time. At midday the sun's rays are hot enough to blister the skin; but they glance harmless from the snow, and for a week or two you have the anomaly of continuous day in midwinter.

Then comes the south wind, and often rain, and the great event of the year takes place; the ice on the rivers breaks up, and the blanket of snow melts away. The black earth absorbs the heat of the never-setting sun; quietly but swiftly vegetable life awakes from its long sleep; and for three months a hot summer produces a brilliant alpine flora, like an English flower-garden run wild, and a profusion of Alpine fruit. Birds arrive in countless thousands to breed in this Eldorado. Long before the snow is melted its surface is reticulated with the tracks of small quadrupeds, whose period of hibernation has come to an end, and who climb up the stems of the stunted bushes and venture out into the sunshine. The Snowy Owls repair to their nests, if nests they may be called, and bring up a numerous family in peace and plenty in a perpetual summer's day, diversified only by storms from the north, which sometimes bring a two or three day's spell of cold and rain down from the arctic ice.

But early in August the sun begins to dip for a few moments below the horizon, and every succeeding midnight sees him hide longer and longer. One by one the various species of birds flock together and leave for southern climes: a large proportion of the Snowy Owls follow their food for some distance; for in September the nights are cold, the frosts begin to kill vegetation, and early in October winter has set in, snow has fallen not to melt again for eight months; the nights get longer and longer, until towards the end of November the sun has ceased to take his midday peep at the endless fields of snow, and the two months' night and silence reign supreme.

In summer the Snowy Owl is a very conspicuous bird on the tundra;

but food is then so plentiful that his "struggle for existence" is over for the time, and possibly his very conspicuousness may be of advantage to him amongst so many innocent Gulls and Swans. He himself is wary enough, and I have only twice succeeded in shooting a Snowy Owl. The first time was on the shores of the lagoon of the Petchora. My attention was first attracted by seeing a great white bird which seemed to me to alight upon a distant lake. Taking it to be a Bewick's Swan, I put a slug-cartridge into my gun, and walked rapidly on in its direction. Before I got within shot the bird rose, and I recognized it at once as a Snowy Owl, as with measured but rapid flight it disappeared behind some sandhills on the shore. I carefully stalked it; and looking cautiously around under cover of the sandhill, I descried at length a white spot on the opposite shore of the creek, which, with the aid of my telescope, I found to be the Owl. He, too, must have been watching me: perhaps he took my sealskin cap for some new species of lemming; for presently he rose and flew across the water directly towards me. By the time he had crossed the creek doubts on the subject seemed to have occurred to him, and he alighted on the beach about sixty yards in front of me. I rose and walked towards him; he also rose; but before he had flown ten yards my shot reached him, broke one of his wings, and dropped him into the sea. As he lay struggling in the water a score of Glaucous and Arctic Herring-Gulls came flying towards him, and sailed round and round him, making quite a small uproar with their cries. The other time that I brought one down was on the voyage home, a little to the east of Kolguev. Early in the morning I turned out of my berth and went on deck, and the first thing I saw was a Snowy Owl on each mast. I ran down for my gun and shot one of them. We were out of sight of land at the time.

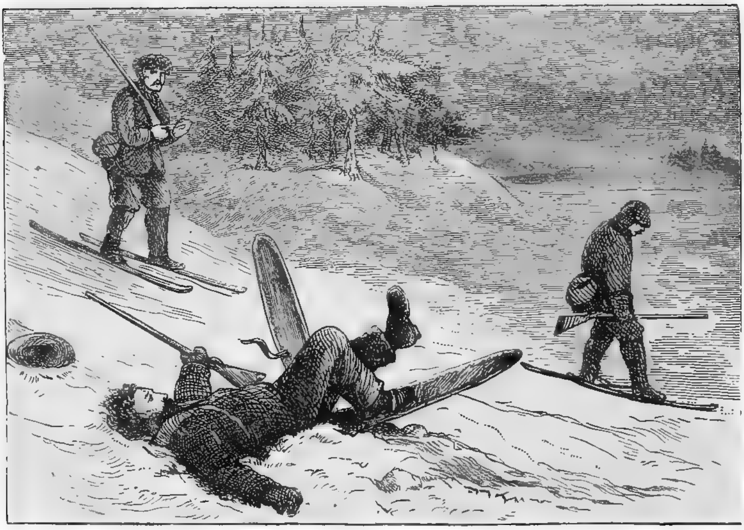
Audubon and Wheelwright describe the Snowy Owl as passing with quick noiseless flight over the fells and marshy parts of the shore, more like a large animated snowflake than a bird, seizing its prey by darting quickly down upon it, and usually devouring it on the spot. When pursuing larger birds or animals, its manner is much the same as that of the Peregrine Falcon.

In the extreme northern limit of its range the Snowy Owl is no doubt a regular summer migrant, repairing north to rear its young during the short arctic summer, and drawing southward again at the approach of winter. The winter-quarters of this species are undoubtedly in the highest northern latitudes in which a sustenance can be obtained, the birds which are found so far south in temperate regions being but exceptional wanderers or young birds. Capt. Feilden mentions that in Grinnell Land the Snowy Owl was first seen on March 29th, and was common during the summer, but by the end of August all had disappeared from Discovery Bay. During the time of migration large flights of the Snowy Owl have frequently been observed far out at sea; and Thompson gives us some very interesting details respecting a flock of this species which accompanied a ship halfway across the Atlantic, from the coast of Labrador to the north of Ireland. This migration was described by the captain of the ship as a very beautiful sight, the birds sometimes flying near the vessel, or perching on the spars and the rigging.

The lemming forms the Snowy Owl's chief food in the far north, the range of both mammal and bird being generally the same; but other small rodents are taken, and it will sometimes attack Ptarmigan and Willow-Grouse, or even the Arctic hare. It is said occasionally to feed on fish. The note of this species is said by Wheelwright to resemble a loud *krau-au* repeated several times in quick succession, and sometimes a loud *rick-rick-rick* as it rises startled from its perching-place.

The nest of this Owl is a simple structure, made of a few lichens, mosses, and feathers, sometimes placed in a hole in the ground, at others on some steep bank or cliff, or on some little eminence rising above the surrounding plains, where it is nothing more than a mere hollow scraped in the reindeer-moss. The eggs are from six to eight in number, sometimes more, creamy white in colour, and somewhat rough in texture, with little gloss. They are smaller than the eggs of the Eagle Owl, and, as a rule, a little more elongated. They vary from 2¼ to 2 inches in length, and from 1·8 to 1·6 inch in breadth. Collett in his 'Remarks on the Ornithology of Northern Norway,' states that "the Snowy Owl does not always lay so many as ten eggs at a time; it did so, however, last year (1871) in many cases; and the various circumstances attending the phenomenon are not without interest. As with all birds of prey, the eggs would appear to be laid not in uninterrupted succession, but with that species at intervals of indefinite duration during a *lengthened* period, fœtation taking place previous to the laying of each egg. A natural consequence is that the young of each brood are widely different in appearance, according to the stage of growth which each has attained. Thus the first of the brood will be almost fledged before the last has broken the shell. And, again, the nestlings, thickly clad with down, necessarily *assist in process of incubation*; the old birds have enough to do to provide for the young already hatched, several of which, being more than half-grown, require a good deal of food." The Snowy Owl's breeding-season varies in date a little according to latitude. In Norway and Lapland the beginning of June may be said to be its laying-season; whilst in the high north the eggs are not laid before the end of that month. According to Collett, "When the female is sitting the male is ever on the watch, and warns his mate at the slightest sign of danger by a loud cry, whereupon she immediately quits her nest, and both birds, screaming incessantly, keep flying for hours together in the immediate neighbourhood of the nest. On such occasions the males are bold to a degree, attacking savagely whomsoever ventures to approach their nest; they will swoop down on the sportsman or his dog, especially the latter, and can with difficulty be driven away. The females take matters more coolly, posting themselves near the nest in some conspicuous spot, but always out of gun-range. It devolves upon the male bird to go in search of prey, the duty of the female being to divide it, when brought to the nest, among her young. Hence the former are always in poor condition, whereas the females are generally plump. Round about the nest are found mice and lemmings, dismembered and entire."

The plumage of the male Snowy Owl varies from pure white, marked very slightly on the crown, back, and primaries with dark brown, to white conspicuously barred all over with dark brown. Legs and feet covered down to the claws with long hairy feathers. Bill and claws black; irides orange-yellow. The female is larger than the male, and it is said always to be more spotted and barred than the male. The nestling bird is covered with sooty-black down, with brownish tips.



SURNIA FUNEREA.

HAWK OWL.

Strix canadensis, *Briss. Orn.* i. p. 518, pl. xxxvii. fig. 2 (1760).
Strix freti-hudsonis, *Briss. Orn.* i. p. 520 (1760).
Strix funerea, *Linn. Syst. Nat.* i. p. 133 (1766); **et auctorum plurimorum**—(*Bonaparte*), (*Gould*), (*Strickland*), *Middendorff*, *Schrenck*, *Radde*, (*Dresser*), (*Newton*), &c.
Strix caparoch, *Müll. Natursyst. Suppl.* i. p. 69 (1776, *ex Edwards*).
Strix hudsonia, *Gmel. Syst. Nat.* i. p. 295 (1788).
Strix nisoria, *Meyer, Taschenb.* p. 84 (1810).
Surnia canadensis (*Briss.*), *Steph. Shaw's Gen. Zool.* xiii. pt. ii. p. 62 (1825).
Stryx doliata, *Pall. Zoogr. Rosso-As.* i. p. 316 (1826).
Noctua nisoria (*Meyer*), *Cuv. Règne An.* i. p. 344 (1829).
Surnia borealis, *Less. Traité,* i. p. 100 (1831).
Surnia hudsonia (*Gmel.*), *James. ed. Wils. Am. Orn.* i. p. 90 (1831).
Noctua funerea (*Linn.*), *Jen. Brit. Vert.* p. 526 (1835).
Surnia funerea (*Linn.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 6 (1838).
Syrnia funerea (*Linn.*), *Macgill. Brit. B.* i. p. 139 (1840).
Nycthierax nisoria (*Meyer*), *Meves, Öfv. Kongl. Vet.-Ak. Förh.* 1879, p. 39.
Surnia ulula (*Linn.*), *apud Bonaparte*, (*Schlegel*), *Cassin*, *Sharpe*, &c.

At least six examples of a species of Hawk Owl have been obtained in the British Islands within the last half-century, particulars of which are given below. Some writers, as Sharpe and Dresser, consider the American and European Hawk Owls "perfectly distinct species;" others, as Baird, Brewer, and Ridgway, make the Palæarctic form only subspecifically distinct from the Nearctic form; whilst Newton, in his edition of 'Yarrell's British Birds,' unites the two forms without note or comment of any kind respecting the alleged differences between them.

There are in reality three varieties of the Hawk Owl. *S. hudsonia* is the American form, scarcely differing at all in the colour of the upper parts from the typical bird, except that the white bands on the tail are rather more developed, also the white spots on the quills, feathers of the head, and scapulars. On the underparts the difference is much more striking; the dark transverse bands are much redder (chestnut-brown instead of greyish brown) and broader (varying from one to two of white, instead of two to four, to one of brown). The typical or European form, for which the only name that has not been misapplied is *S. nisoria,* is an intermediate form between the American one and the Siberian or Arctic one. The latter, *S. doliata,* differs from the European form in having the white parts purer white and the dark parts darker and greyer. The differences between these three varieties, however, are very small, and not much greater than those of age, sex, and season. Females and young males are paler on the upper parts, and have the dark bars on the underparts slightly broader and more rufous than adult males. In young females these differences are still more pronounced.

Of the six examples enumerated as having occurred in the British Islands, I have only seen one, which belonged undoubtedly to the American variety. Two others were identified by Sharpe and Dresser as the same species. Of the remaining three, two cannot now be traced; but one of them, at least, was brought by a sailor to be stuffed, and was probably caught on board ship. A description of the third in Saxby's 'Birds of Shetland' is sufficiently minute to leave little doubt that it is the Palæarctic variety.

The American variety of the Hawk Owl breeds in the pine-forests of Alaska, Hudson's Bay Territory, and Newfoundland, a few straying in winter as far south as the Northern United States.

The European variety breeds throughout the pine-forests of Scandinavia and North Russia, occasionally reaching as high as the birch-region on the confines of the tundra. In winter it sometimes visits Denmark, is more common in Northern Germany, and has been known to stray as far as Northern France, Austria, and Poland. Eastwards it winters in Central and Southern Russia. In Siberia the range of the Arctic form of the Hawk Owl extends from the Urals to the Pacific; but its migrations appear to be confined within the country, as it is a resident in Northern Turkestan and the Amoor, and has not been recorded from further south.

This bold little bird, in many of its habits and deeds of daring, appears to hold the same place amongst the Owls as the Sparrow-Hawk does amongst the Hawks. Its true home is in the Arctic pine-forests, where it is a resident bird throughout the year, only a few individuals wandering southwards at the approach of winter. The Hawk Owl is far from being a shy bird, and, like the Falcons and the Hawks, hunts for its prey in the open daylight, gliding along with all the impetuous rush of a Hawk, yet with the soft noiseless flight peculiar to its kindred. It is occasionally mobbed by the smaller birds, and even by the Magpies and Siberian Jays, but appears to take but little heed of their attacks, although it will sometimes dash into the midst of its tormentors and bear one off in an instant.

The principal food of the Hawk Owl is mice and lemmings; and the bird follows the migratory parties of the last-named little mammal to prey upon them. From its indomitable spirit, however, few birds of the forest are safe from its attacks. In addition to the smaller birds which it captures, Wheelwright mentions the fact that he has seen the Hawk Owl strike down the Siberian Jay, and has also disturbed it feeding on an old Willow-Grouse. The same naturalist has also taken insects from its stomach. It may often be seen sitting perched on the dead summit of a lofty pine, from which it flies off to pursue some tempting quarry. Seen thus, the bird bears a striking resemblance to the Hawks; and its long tail and short wings, when the bird is in motion, also increase the delusion. It is one of the easiest birds to approach, and, when fired at, will not unfrequently again alight on the same tree, as if challenging the unsuccessful marksman to a fresh trial of his skill. The note of this bird was compared by Wolley to the cry of a Hawk.

The breeding-season of the Hawk Owl appears to commence in the middle of April, and to last to the end of June. As this bird possesses the bit, in common with many of its congeners, of laying eggs at intervals, and sitting on them as soon as laid, eggs may be found as late as the third week in June. It makes no nest; and the eggs are usually laid in the hole of a decayed pine tree, and rest on the powdered wood alone, as is the case with the eggs of the Woodpecker*. Collett mentions a nest of this Owl in Norway, on the top of a broken pine-trunk, some six feet below which a Golden-eye Duck was sitting on her nest. Wolley mentions a similar instance in Lapland, as does also Dall in Alaska. This Owl will also frequently take possession of the nest-boxes placed by the peasants for the Ducks, and rear its young in them. The eggs of the Hawk Owl are from five to eight in number, white in colour, smooth, and possess considerable gloss. They measure from 1·65 to 1·55 inch in length, and from 1·25 to 1·17 inch in breadth. The eggs of the Hawk Owl cannot be distinguished from those of the Short-eared Owl, thus rendering an additional figure unnecessary. Both birds sit upon the eggs, and are sometimes found on them in company. While the female is upon her charge the male bird will perch close at hand, ready to do battle with any intruder, not even excepting man himself. Numerous instances are recorded of this bird's dauntless courage when its nest is assailed. It strikes at the intruder again and again, seeming not to care for its own safety, and too often pays the price of its temerity with its life.

The Hawk Owl commences its moult before the young can fly, and completes it by the time they are in full feather. Wheelwright asserts that the breast and belly of the female in the breeding-season are strongly tinged with reddish brown, doubtless from the decaying wood.

During autumn the Hawk Owl still keeps in company with its young, hunting in little parties for food; then they become gipsy migrants, and a few wander far south of their native forests. The habits of the American variety of the Hawk Owl are not known to differ from those of the Palæarctic species; and its eggs are undistinguishable.

The general colour of the upper parts of the Hawk-Owl is blackish brown, mottled with dull white; tail barred narrowly and tipped broadly with white. Underparts white, barred with dark reddish brown; tarsi and toes covered with greyish-white feathers. Bill yellowish white; irides straw-yellow; claws bluish black at tips, paler at base. The female bird is a little larger than the male.

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* Macfarlane's account, quoted by Baird, Brewer, and Ridgway, of the nest of this bird being built of small sticks and twigs in pine trees in Arctic America, is contrary to the experience of every other ornithologist who has taken its eggs.

Genus BUBO.

The Eagle Owls were first separated from the genus *Strix* in 1760 by Brisson, who associated them with the other horned Owls in a somewhat heterogeneous group, to which he gave the generic name of *Asio*. In 1767 they were temporarily dissociated from the Scops Eared Owls by Gerini, and placed in the genus *Bubo*; but in 1806 Duméril reunited them with their smaller relations, retaining the name of *Bubo* for the composite genus. In 1810 Savigny finally separated them from the Scops Eared Owls; and in 1817 Cuvier, in his 'Règne Animal,' p. 331, restricted the genus to its present limits, but without indicating any type. As *Bubo maximus* is the *Strix bubo* of Linnæus and the *Asio bubo* of Brisson, it must, of course, be considered the type of the restricted genus.

The Eagle Owls are not really distinct from *Scops*, the only generic distinction being difference of size, none of them measuring less than a foot in length of wing. They are furnished with ear-tufts. The tarsi are always feathered; but in some species the toes are almost naked. They belong to the group of Owls in which the ear is small, about the size of the eye, and not furnished with an operculum. The underparts are both transversely barred and longitudinally streaked; but the bars are almost obsolete, and the streaks very conspicuous—a character which distinguishes them from the Hawk Owls. In their habits they do not differ materially from the other Owls.

The Eagle Owls are found almost all over the world, with the exception of Australia and the Pacific Islands. There are about twenty species. Only two, very nearly allied ones, are found in Europe; and of these only one visits our islands.

BUBO MAXIMUS.

EAGLE OWL.

(Plate 7.)

Asio bubo, *Briss. Orn.* i. p. 477 (1760).
Strix bubo, *Linn. Syst. Nat.* i. p. 131 (1766).
Bubo maximus, *Gerini, Orn. Meth. Dig.* i. p. 84, pl. lxxxi. (1767); **et auctorum plurimorum**—*Fleming, Gould, Bonaparte, Macgillivray, Gray, Strickland, Kaup, Schlegel, Newton* (*Ootheca Wolleyana*), *Heuglin, Hume, Sclater,* &c.
Bubo ignavus, *Forster, Syn. Cat. Brit. B.* p. 46 (1817).
Bubo europæus, *Less. Traité,* i. p. 115, pl. xvii. fig. 1 (1831).
Asio bubo (*Linn.*), *Swains. Classif. B.* ii. p. 217 (1836).
Otus bubo (*Linn.*), *Schl. Rev. Crit.* p. xiii (1844).
Bubo atheniensis, *Bonap. Consp.* i. p. 48 (1850).
Bubo bubo (*Linn.*), *Licht. Nomencl. Av.* p. 7 (1854).

Although this fine species of Owl is pretty generally distributed over the northern portions of the Old World, it is very rarely noticed in the British Islands, and only at uncertain intervals. Many instances of the capture of this species in Great Britain which are on record may very probably be those of escaped birds, as it is very frequently kept in confinement. It is chiefly met with in the Orkney and Shetland Islands, but even there rarely and at uncertain intervals. It has several times been recorded from Scotland; and Gray, in his 'Birds of the West of Scotland,' mentions a specimen, on the authority of Mr. Angus, captured in February 1866, in Aberdeenshire. In England it has been obtained in Kent, Sussex, and Devonshire; and an example was caught alive at Hampstead, near London. It is also said to have occurred in Durham, Yorkshire, Derbyshire, Norfolk, Suffolk, and Oxfordshire, also at Swansea in South Wales. Several other instances of the supposed occurrence of this bird in Great Britain are on record. Among the most trustworthy may be mentioned a female, shot near Stamford, Lincolnshire, in April 1879, and recorded in the 'Zoologist' by Mr. J. Cullingford. This example was examined by Canon Tristram soon after it was skinned; and he assures me that the bird bore no traces of having been in confinement. It is doubtful if the Eagle Owl has ever occurred in Ireland, the only record of its appearance there being a statement quoted by Thompson to the effect that four of these birds appeared in Donegal after a severe snowstorm and remained for two days, but were not seen afterwards.

The Eagle Owl inhabits the forest-districts of all the countries of continental Europe, from Scandinavia, Lapland, and North Russia, southwards to the shores of the Mediterranean, and is a rare winter-straggler to North-east Africa*. Loche, however, records it as common in Algeria, especially in the mountains and forests, where it breeds.

As its range extends eastwards the Eagle Owl becomes larger and paler—examples from the Volga and Archangel gradually leading on to the Arctic form, which has received the name of *B. sibiricus* †. This subspecies inhabits Siberia, extending its range southwards to Persia, Turkestan, Afghanistan, the Himalayas, and probably Mongolia. In the valley of the Amoor the colour again becomes more rufous, until in Japan and China the typical European bird reappears. The Arctic form has not occurred in the British Islands.

On the American continent the Eagle Owl is replaced by a nearly allied species, *B. virginianus*, a bird of very similar habits, and differing from the Old-World form in being smaller (length of wing not exceeding 16 inches). Like the Eagle Owl, it appears to be subject to much climatic variation; and Messrs. Baird, Brewer, and Ridgway separate it into no less than four subspecies or races.

The Eagle Owl is one of the most powerful of rapacious birds, and is principally nocturnal in its habits; but when disturbed in the daytime it seems little troubled by the light, and is extremely shy and difficult to approach. As with most of the nocturnal birds of prey, we know but little of the habits of this species. It usually remains in its retreat in some secluded rocky pass, or in the depths of the forest, throughout the day, coming out in the dusk in quest of food. Its flight is powerful, yet, like all Owls, almost noiseless, so that it drops upon its prey completely unawares. Its deep, loud, hooting cry, sounding strangely weird and startling in the dark and silent woods, or when the bird is passing overhead, is well calculated to inspire the superstitious natives with awe; and no wonder the bird figures so prominently in the various native legends as a bird of doom and death. Except in the pairing-season, it is said to rarely utter its note, which resembles the syllables *oo-hoo* modulated in various ways.

Few rapacious birds are so destructive to large game as the Eagle Owl. Even the powerful Capercailsie, the Blackcock, and the Hazel-Grouse are overpowered; whilst fawns, hares, and rabbits form a prominent feature of his diet. Yet he also takes much more lowly game, and hunts for the various "small deer" which haunt his wild solitudes, as mice, rats, and moles. The Jays and Crows, so abundant in northern forests, also form part of his fare; and in more cultivated districts he preys on Pheasants and Partridges.

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* In North Africa a nearly allied bird occurs, *Bubo ascalaphus*, which may have been possibly confused with, or mistaken for, the present species.

† The synonymy of the Arctic form of this Owl is as under:—

Asio bubo laponicus, *Briss. Orn.* i. p. 486 (1760).
Strix scandiaca, *Linn. Syst. Nat.* i. p. 132 (1766).
Bubo albus, *Daud. Traité*, ii. p. 210 (1800).
Strix turcomana, *Eversm. Add. Pall. Zoogr.* fasc. i. p. 3 (1835).
Strix sibirica, *Susem. Vög. Eur.* pl. xliv. (1843).
Bubo cinereus, *Eversm. fide Gray, Gen. B.* i. pl. xiii. (1845).
Bubo sibiricus (*Schleg.*), *Gray, Cat. Accipitr. Brit. Mus.* p. 99 (1848).
Bubo scandiacus (*Linn.*), *Cab. Journ. Orn.* 1854, p. 367.
Bubo pallidus, *Brehm, Naum.* 1855, p. 270.
Bubo hemachalana, *Hume, Stray Feath.* 1873, p. 315.

This Owl appears to bear confinement well, and is a bird constantly to be seen in menageries and birdfanciers' shops, and has bred in confinement at Arundel Castle and other places. Mr. E. Fountaine, of Easton, near Norwich, has been singularly successful in his treatment of this bird in captivity, and has induced it to breed and rear its progeny; in 'The Ibis' for 1859, p. 273, a detailed description and full particulars will be found of the nesting of this species in his aviary. The Eagle Owl must be a bird of great longevity; for he mentions that the original hen bird, from which he had so many eggs, had been kept twenty years in confinement before she came into his possession.

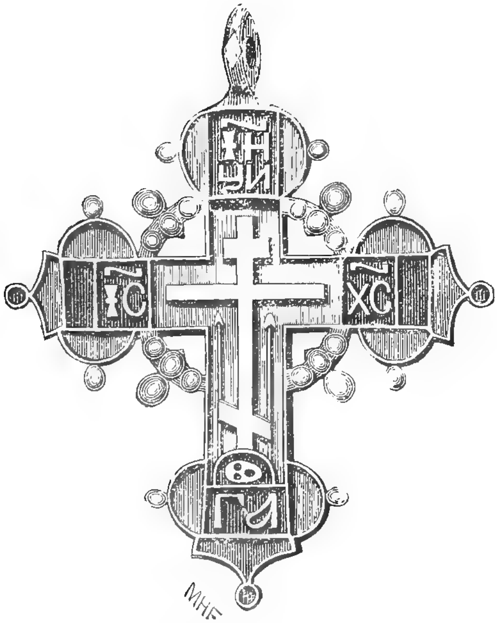
The Eagle Owl is an early breeder, and commences to lay in March or early in April. It is essentially a forest-bird, generally breeding on some strong branch or fork of a tree. It seldom, if ever, makes a nest of its own; but takes possession of any old nest that it can find, rarely choosing one more than thirty feet from the ground. In the forests of Pomerania, where it is frequently met with, it usually breeds in a tree; but the eggs have very often been found in a slight hollow scratched in the ground at the foot of the tree. It is very shy and wary at the nest, and seems to possess as keen a sight to detect the presence of an enemy as the most diurnal bird. Von Homeyer related to me his repeated efforts to shoot the old bird at the nest; but, although he concealed himself as much as possible, she always caught a glimpse of him before she got within shot, and turned round and flew off. In the more mountainous forests, where there are rocks, it seems to prefer a nesting-place upon some ledge or convenient shelf; but even in such a locality the eggs are not always laid on the rocks. Wolley mentions two clutches in Lapland taken from the ground under the shelter of the roots of a fallen tree.

In the Parnassus I visited two nesting-places of this bird, from one of which I obtained an egg, and from the other shot one of the parent birds. In neither case was much nest made. The situation chosen was in one of those clefts or caves so common in limestone rocks; and apparently it was used as a roosting-place, for in both cases the young broods had flown.

Linnæus met with an Eagle-Owl's nest on the higher hills of Lapland, which contained an addled egg and two young birds. But the most graphic and minute description of the nest of this fine bird is that by Wolley:—"It was on the 20th of May, and after climbing to the mysterious cave of Skulberg, that our road lay under a steep mountain-side broken up into crags and ledges of the character which is usually so attractive to birds of prey. There was a little village at the foot, and an old man pointed out the direction from which the hootings were to be heard every evening. Whilst I was listening to the consultation, and taking a survey with my glass, an Osprey flew along the edge of the cliff; and at a great height above us, and mellowed in the distance, there came a full note from a *Berg-ufo,* who no doubt had seen the stranger bird. This was very encouraging, and it did not take long to arrange the order in which the various likely rocks were to be visited. An active woodman accompanied me axe in hand. When we were fairly in the cliffs we came to a point where some large bird was in the habit of sitting to tear its prey, and feathers and white feet of hares were lying about. A great Owl flew before us, showing a beautiful expanse of back and wings; and as we proceeded in the direction from which it came, another large Owl rose from the face of the cliff, flew a hundred paces forward, turned its wide face towards us, and came a short distance back. I stopped to examine it with my glass to be quite certain it was *S. bubo.* Satisfied on this point, we only had to walk a few paces along a ledge before the family group was in sight—two blind little puffs covered with down just tinged with yellow, and an egg with the prisoner inside uttering his series of four or five chirps through the window he had made in the shell, with a voice scarcely more feeble than that of his elder brothers. There did not seem to be much difference in the ages of the three; they were lying upon a small quantity of compressed fur, principally of rats, the remains of the castings of the parent birds, their bed nearly flat, for there was not more than two inches of soil. *Uva-ursi* and several other plants grew near; and a small Scotch fir tree had its trunk curiously flattened to the perpendicular rock at the back; the ledge was not more than two feet wide, and terminated abruptly just beyond the nest; the rock beneath was also perpendicular. We waited at the nest a long time in the hope that they [the parent birds] would show themselves: but it was not till we had left it that we saw them again sitting on the topmost shoots of spruce firs with their ears finely relieved against the sky; and as we were nearly in the village again they hooted with a troubled note." The Eagle Owl very often chooses a place for its abode similar to that selected by the Golden Eagle, and often quite exposed and open to the full glare of day.

The eggs of the Eagle Owl are usually three in number, sometimes only two; but no authentic instance is on record where four or more eggs have been found in one nest. It will thus be seen that the number of eggs laid by the Snowy Owl is much larger; yet the two birds occur in pretty much the same numbers. It is therefore possible that the Snowy Owl lays more eggs to support a greater mortality to which its more northern range exposes it, where food is extremely precarious, and the climate so severe. The eggs are pure white, very rotund, and the shell is somewhat rough in texture. Their superior size prevents them being confused with those of any other species of European Owl. They measure from 2·55 to 2·1 inch in length and from 2 to 1·85 inch in breadth.

The general colour of the upper parts of the Eagle Owl is a mottled mixture of reddish brown and dark brown; the primaries and tail transversely barred. The underparts are brown, palest on the breast, which is marked with longitudinal patches of dark brown, whilst the remainder of the under surface is marked with numerous transverse bars of dark brown. Beak, which is nearly hidden by feathers, black; irides bright orange; claws black. The tufts on the head are composed of elongated dark brown feathers barred with light brown, and form two large horns erected or depressed at pleasure. The female bird is similar to the male, but larger in size.



Genus SCOPS.

The Scops Owls were first separated from the genus *Strix* by Gerini in 1767, in his 'Ornithologia Methodice Digesta,' i. p. 86, under the name of *Asio*, of which he enumerates seven species. As Gerini's *Asio* is not the same as the *Asio* of Brisson, which has been extensively adopted by ornithologists, its retention would be liable to produce considerable confusion; and it is therefore wisest to pass it over in favour of the *Scops* of Savigny ('Système des Oiseaux de l'Egypte et de la Syrie,' p. 9), established in 1810, and of which the *Strix scops* of Linnæus may be fairly considered the type.

The Scops Owls have no operculum, and the nostrils are not inflated—characters which distinguish them from every other genus except *Surnia* and *Bubo*. From the former they may be distinguished by their conspicuous ear-tufts, their more compact plumage, and by the fact that the longitudinal streaks on the underparts are more conspicuous than the comparatively obscure transverse vermiculations. From the latter they are only generically separated for the sake of convenience, the wing never exceeding nine inches in length, whereas in the genus *Bubo* it is never less than twelve.

There is nothing peculiar in the habits of these birds, which resemble those of the Owls in general. Their eggs are pure white. There are five-and-twenty or more species recognized by ornithologists, and as many subspecies, in this genus.

They are almost cosmopolitan in their range, principally confined to the tropical regions, being only found in the southern portions of the Nearctic and Palæarctic regions, and not extending into the extreme south of South America. One species only is found in Europe, which is only an accidental visitor to the British Isles.

SCOPS SCOPS.

THE SCOPS OWL.

(PLATE 7.)

Asio scops, *Briss. Orn.* i. p. 495, pl. xxxvii. fig. 1 (1760).
Strix scops, *Linn. Syst. Nat.* i. p. 132 (1766); **et auctorum plurimorum**—*Temminck, Naumann, Yarrell, (Keyserling), (Blasius), (Gray), (Salvadori), (Schlegel)*, &c.
Strix giu, *Scop. Ann. I. Hist. Nat.* p. 19 (1769).
Stryx pulchella, *Pall. Reise Russ. Reichs*, i. p. 456 (1771).
Strix zorca, *Gmel. Syst. Nat.* i. p. 289 (1788).
Strix carnioliaca, *Gmel. Syst. Nat.* i. p. 290 (1788).
Scops ephialtes, *Sav. Syst. Ois. de l'Egypte*, p. 47 (1810).
Bubo scops (*Linn.*), *Boie, Isis*, 1822, p. 549.
Scops aldrovandi, *Flem. Brit. An.* p. 57 (1828).
Scops europæus, *Less. Traité*, p. 106 (1831).
Scops senegalensis, *Swains. Classif. B.* ii. p. 217 (1837).
Scops zorca (*Gmel.*), *Swains. Classif. B.* ii. p. 217 (1837).
Ephialtes scops (*Linn.*), *Keys. & Blas. Wirb. Eur.* p. xxxiii (1840).
Otus scops (*Linn.*), *Schl. Rev. Crit.* pp. xiv, 38 (1844).
Scops vera, *Finsch, Journ. Orn.* 1859, p. 381.
Ephialtes zorca (*Gmel.*), *Jaub. & Barth. Lap. Rich. Orn.* p. 78 (1859).
Scops longipennis, *Kaup, Trans. Zool. Soc.* iv. p. 223 (1862).
Scops giu (*Scop.*), *Newt. Ooth. Wolley.* p. 153 (1864).

The Scops Owl was first recorded as a British bird in the spring of 1805, from specimens killed in Yorkshire. One of those examples was killed near Wetherby, and formed the subject of Bewick's woodcut of this species. Since that period a score or more examples have from time to time been obtained in England, the bird being now sufficiently well known as an accidental visitor to render a detailed account of each occurrence unnecessary. From Scotland but one specimen has been recorded, which was shot in Sutherlandshire in the early summer of 1854. The Scops Owl has also occurred twice in Ireland: one, mentioned by Thompson, was shot at Loughcrew, in co. Meath in 1837, and another at Kilmore, in Wexford, in the spring of 1847.

The Scops Owl breeds throughout Europe south of the Baltic, wintering in North-east Africa as far south as Abyssinia. Eastwards it breeds in Asia Minor, Turkestan, and Persia. In North-west and West Africa there is a resident race which is slightly smaller, but does not differ in colour; whilst in North-east Africa and South Africa another smaller variety (*S. capensis*) occurs, with shorter wings and of a dark grey colour. In the North-west Himalayas a pale form occurs (*S. brucii*), which is most probably a fairly distinct species. In Nepal, Madras, and Malacca three varieties occur, somewhat smaller in size, and having more rounded wings, the first primary being shorter than the seventh, and the second primary much shorter than the fifth. (In the European and North-west Himalayan birds the first primary is considerably longer than the seventh, and the second primary much longer than the fifth.) Similar small varieties with rounded wings also occur in China, Japan, and the valley of the Amoor.

The Scops Owl is a nocturnal bird, its note being more often heard during the night than during the day. Its food is procured principally during the evening; and in the daytime it is very seldom seen on the wing. That it is not exclusively nocturnal in its habits is proved by the observations of Dresser, who states that he not unfrequently saw it in Spain flying about during the brightest portion of a hot summer's day. Heuglin, in describing its habits on the Nile, where it is only a winter visitant, also says that it is frequently seen during the daytime, frequenting not only copses, but occasionally isolated bushes where there is scarcely any shade. During the day it is seldom seen far from the trees where it roosts; but in the evening it frequents the open ground, feeding upon grasshoppers, beetles, cockchafers, and large moths, and occasionally catching a mouse or a shrew. Naumann says that it also picks up small birds and frogs, and on clear nights hunts till dawn. The Scops Owl not only frequents the country, but also comes into the gardens and avenues of trees in many southern cities. Irby mentions that their monotonous single note may be heard repeatedly by day as well as by night, even in the trees which fringe the Delicias, the Rotten Row of Seville.

In Greece and Asia Minor I found it a not uncommon bird, but one which was very rarely seen. The Little Owl was often seen in the daytime; but the present species seemed more especially to be a nocturnal bird. I never once met with it on the wing, but have often listened to its monotonous note, as monotonous as a passing bell, and almost as melancholy. To my ears this note is exactly represented by the sound of the syllable *ahp* repeated in an unvarying and desponding tone every ten or twenty seconds. This bird is generally, if sparingly, distributed all over Greece, from the seashore almost, if not quite, up to the pine-regions on the mountains. I have often listened to its note as I lay in my camp-bed in a peasant's cottage at Agoriane, halfway up the Parnassus, when it was almost too cold to sleep with comfort; and I have heard it from the hotel at Buyukdere, on the Bosphorus, when, with window wide open, the heat made it still more difficult to pass the night in happy unconsciousness even of ornithological sounds.

In the extreme south of Europe a few Scops Owls are to be seen during the winter; but by far the greatest number are migrants, arriving early in April and leaving again in October. Immediately after its arrival the old nesting-place is taken possession of, and probably used as a roosting-place during the day; but the eggs are seldom laid before the middle of May. The female sits very close, and can generally be caught on the nest. Irby says that it breeds very abundantly in the cork-woods round Gibraltar, and that the nest is very easily discovered by beating the tree with a stick.

The Scops Owl breeds almost universally in hollow trees; but Tristram found its nest in holes in walls, and Krüper describes it as especially common on the island of Naxos, laying its eggs in the scaffold-holes which the indolent Greeks omitted to fill up in the houses. Like all the Owls, the present species makes little or no nest, merely a little hollow scratched out, and lined with the indigestible portions of the bird's food. The eggs are from five to six in number, pure white in colour, and varying in length from 1·3 to 1·15 inch, and in breadth from 1·1 to 1·0 inch. The only eggs of a British Owl with which those of the Scops Owl can be confounded are those of the Little Owl. Small examples of the latter measure the same as large examples of the former, but are generally rougher in texture and not so round in shape.

The Scops Owl is the smallest British Owl. The general colour is grey, each feather with a dark centre, vermiculated with brown of various shades. It has two not very conspicuous ear-tufts, and may be distinguished from every other British Owl by its bare feet, the tarsus only being feathered. Toes brown; claws black at tip, whitish at base; beak black; irides yellow. The female is similar to the male; but young birds are more rufous than adults.

The American Screech-Owl, *S. asio,* an allied species to the present, is said to have occurred twice in England. One is recorded in the 'Naturalist,' 1855, p. 69, as having been shot near Kirkstall Abbey in Yorkshire in 1852; the second is mentioned by Mr. Stevenson, and is supposed to have been killed near Yarmouth in Norfolk. The evidence in both cases is extremely unsatisfactory.

Family PASSERIDÆ, OR SINGING BIRDS.

The Singing Birds, together with three other families* (of which there are no representatives in Europe), constitute what are frequently called the true Passeres, the great central group of dominant birds—by far the most numerous in genera and species, yet exhibiting few anatomical differences *inter se*—the most highly developed, and yet at the same time the most cosmopolitan of birds. They may indeed be said to be absolutely cosmopolitan, being found throughout the world, except on such rocky coasts where no bird can exist which does not obtain its food from the water.

The Passeres are the typical birds, the great central apex of the genealogical tree, very nearly related to each other, and surrounded by outlying families or branches much more distantly related, and consequently presenting important anatomical characters by which to separate them from the great central group and from each other.

The Passeres are the true *Aves*; the other families are the failures, the least developed descendants of the intermediate forms which once connected Birds and Reptiles, families containing comparatively few genera and species, some fast dying out, but so widely separated from each other that to trace their relationship we should have to go back almost to the roots of the genealogical tree. So obscure indeed is this connexion that ornithologists cannot decide in some cases (the so-called *Ratitæ*, for instance) whether they form one family or great group, or are the remnants of several distantly connected groups.

The *Passeridæ* are separated from the other three families to which they are most nearly allied by a peculiar structure of the singing-apparatus at the lower end of the windpipe; but this apparently exhausts the anatomical characters which our physiologists have been able to discover, and leaves us with nearly half the known species of birds so closely related to each other that no known internal characters exist by which they may be subdivided.

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* Sclater (Ibis, 1880, p. 345) divides his order *Passeres* into four suborders:—*Oscines*, comprising about 4550 species (nearly half the species of birds known), principally found in the Old World, but many peculiar to the New; *Oligomyodæ*, comprising about 550 species, principally found in the New World, but some peculiar to the Old; *Tracheophonæ*, comprising about 500 species confined to the New World; and *Pseudoscines*, comprising half a dozen species confined to Australia.

In order to divide the *Passeridæ* into subfamilies we have to rely entirely upon external characters, many of which may be of very recent origin, and developed by a common cause simultaneously from several centres, so that our classification must be more or less an artificial one, and in many cases, no doubt, not corresponding with genealogical relationship. So unreliable as a test of family connexion are these external characters, that a humorous ornithologist has said "that no external characters are so unreliable as the form of the beak and the feet, except the shape of the wings and tail"! The wisest course is to acknowledge our ignorance, and accept an admittedly artificial classification until future discoveries reveal a natural system.

The British species of birds belonging to the *Passeridæ* may be arranged in the following subfamilies:—

TURDINÆ, or Thrushes.
SYLVIINÆ, or Warblers.
PARINÆ, or Tits.
CORVINÆ, or Crows.
LANIINÆ, or Shrikes.
AMPELINÆ, or Waxwings.
STURNINÆ, or Starlings.
FRINGILLINÆ, or Finches.
HIRUNDININÆ, or Swallows.
MOTACILLINÆ, or Wagtails.
ALAUDINÆ, or Larks.

The order in which these subfamilies should be arranged and their mutual relationship remain a mystery. The *Alaudinæ* and the *Hirundininæ* are probably the most aberrant, and ought perhaps to be placed at the outside. It is impossible to say which is the central or most typical group; the *Turdinæ, Sylviinæ, Corvinæ,* and *Fringillinæ* have equal claims to the distinction.

Subfamily TURDINÆ, OR THRUSHES.

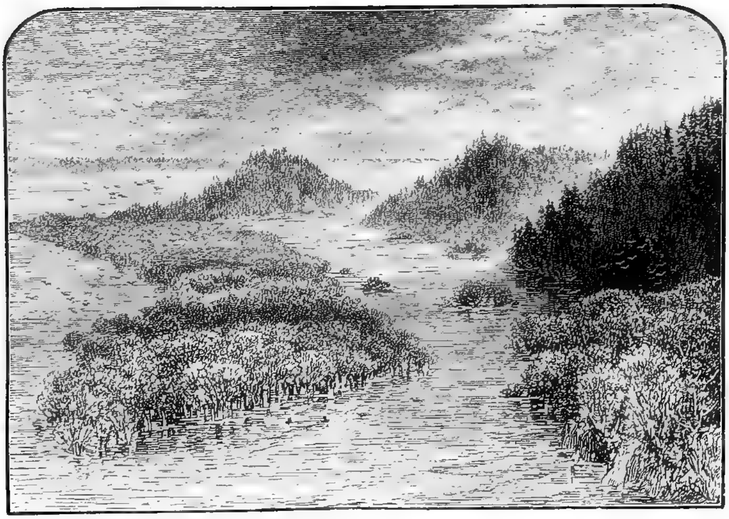
The Thrushes and their allies form a large group of birds so nearly related to the Warblers and the Tits, that it is impossible to draw a hard and fast line between them. Their chief character consists in having the front as well as the back of the tarsus covered with one long plate instead of several smaller ones; but this peculiarity is often absent in young birds, and is also to be found in some of the smaller Tits and Warblers, especially in old birds, where the scutellæ become confluent. In the other subfamilies the scutellation of the tarsus is generally well marked. The bill in this family is very variable. It is usually slender, a typical insectivorous bill; but in some genera it is widened to adapt it to catch insects on the wing. It is not always furnished with rictal bristles. There is usually an almost obsolete notch or indentation near the tip, but never a Raptorial tooth as in the Shrikes. The bastard primary is always present—a character which separates the Thrushes from the Wagtails and the Swallows, and also from all the British Finches. In the British examples of the *Turdinæ* it is sometimes very small, but never so minute as in the Starlings and in the Waxwings. In all of them, however, it is much narrower than the second primary, and not half as long, a character which will serve to distinguish the British Thrushes from the Crows. The young in first plumage differ from the adults in having the upper and underparts more or less spotted; but they moult into adult plumage in their first autumn before they migrate. Adults moult only in the autumn, usually attaining their nuptial dress by casting the ends of the feathers, which deepen in colour at the same time. The *Turdinæ* are nearly cosmopolitan, and probably number more than seven hundred species, of which about one hundred are European. Nearly one third of these inhabit our islands, or visit them more or less regularly. The British *Turdinæ* belong to ten genera. Many of these are so closely related, that they can only be recognized by courtesy or as a matter of convenience. There are no structural characters on which to form a key to the genera. The chief character which has been relied upon is the pattern of the colours, which will be described in each genus.

Genus GEOCICHLA.

The genus *Geocichla* is supposed to have been established by Kuhl about the year 1825; and *Geocichla interpres* is considered the type; but the original publication of this genus has not yet been found, and is probably in some obscure Dutch periodical. It contains a number of Thrushes distinguished as Ground-Thrushes, and supposed to be the least changed descendants of the ancestors of the true Thrushes and Ouzels. They are characterized by having the basal portion of the outside web of all the secondaries and of many of the primaries white, occasionally tinted with buff, but abruptly defined from the brown of the rest of the quills, and forming a peculiar pattern on the under surface of the wing. The axillaries are particoloured, the basal half being white, and the terminal half black, slate-grey, or brown. Most of the under wing-coverts are similarly particoloured; but the relative position of the colours is reversed, the white portion being on the terminal half. These characters serve to distinguish them from all other allied genera.

The genus *Geocichla* contains about forty species, principally confined to the Oriental and Æthiopian Regions. Three species of the genus are not tropical—one breeding in Western North America, and two in Eastern Siberia. Of these latter, individuals occasionally take the wrong route of migration in autumn, and wander into Europe, sometimes as far as our islands.

The Ground-Thrushes are *par excellence* ground-Thrushes, and frequent trees and shrubs far less frequently than the Thrushes or Ouzels. They haunt dense groves and jungles, as well as the ground in the open parts of the woodlands. These birds possess considerable powers of song. Their food consists of worms, grubs, insects, fruits, berries, &c. They all build open nests, made of dried grasses, rootlets, moss, and mud, placing them at various heights from the ground in trees and bushes. Their eggs, three to five in number, vary from pale bluish green to dark bluish green in ground-colour, spotted and freckled with rufous-brown.



GEOCICHLA VARIA.

WHITE'S GROUND-THRUSH.

(PLATE 8.)

Turdus aureus, *Holandre, Ann. de Verr.* 1825, p. 310.
Turdus varius, *Pall. Zoogr. Rosso-As.* i. p. 449 (1826); **et auctorum plurimorum** —*Gould, Macgillivray, Temminck, Homeyer, Radde, Gray, Newton, Tweeddale, Dresser, Swinhoe,* &c.
Turdus squamatus, *Boie, Isis,* 1835, p. 251.
Turdus whitei, *Eyton, Rarer Brit. B.* p. 92 (1836).
Oreocincla whitei (*Eyton*), *Gould, Proc. Zool. Soc.* 1837, p. 136.
Oreocincla varia (*Pall.*), *Gould, Proc. Zool. Soc.* 1837, p. 136.
Oreocincla aurea (*Hol.*), *Bonap. Cat. Ucc. Eur.* p. 34 (1842).
Turdus lunulatus, *Lath. apud Blas. List B. Eur.* p. 9 (1862).
Turdus dauma, *Lath. apud Pelzeln, Verh. k.-k. zool.-bot. Gesell. Wien,* 1871, p. 703.
Geocichla varia (*Pall.*), *Seebohm, Cat. B. Brit. Mus.* v. p. 151 (1881).

This handsome bird has occurred in the British Islands at least a dozen times. The first record is that of a bird which was taken during the winter of 1828. This specimen was announced as new to the British fauna by the late Mr. Eyton, who, erroneously believing the bird to be undescribed, named it in honour of Gilbert White, of Selborne, as a just and fitting tribute to one who did so much for the cause of natural history. In England the bird has been obtained in several of the southern and south-midland counties, once in Norfolk, twice in Yorkshire, and once in Durham. In Ireland it has been obtained twice—one specimen in South Cork and the other in the county of Longford. Most of these specimens were taken in the depth of winter, two in spring, and one in autumn. On the continent of Europe it has occurred perhaps a dozen times, besides five or six times on the island of Heligoland. Gaetke's examples are among the gems of his unrivalled museum. The occurrence of White's Thrush in Europe can only be considered accidental, though accidents of this kind happen regularly. After the breeding-season is over in the Arctic regions the great stream of migration which passes from north to south through Central Siberia appears to divide before it reaches the mountains of Mongolia, to avoid the deserts beyond. Some species of birds turn east, and others west; and of the species which Nature has ordained to winter east, some individuals, probably for the most part young birds who have never migrated before, lose their way and get into the wrong stream, and thus find their way into Europe as strangers from the east, some of whom fall into Gaetke's hands on Heligoland every year.

The breeding-ground and true home of this fine bird is South-central and South-eastern Siberia and North China. It winters in South Japan, South-west China, and the Philippine Islands, occasionally straying as far west as Sumatra. The limit of its western range in summer is difficult to ascertain, but is possibly confined to the watershed of the Yenesay and the Lena. It was obtained by Gmelin * at Krasnoyarsk; and on the shores of Lake Baikal Dybowski records it as common at the migration-seasons.

The haunts of this bird are but little known. It has always been found in well-wooded districts (chiefly mountain-woods), well-timbered banks of streams, gardens, and wooded plains. The specimens that have occurred in the British Islands have all been taken in similar situations to those of its true eastern home. Mr. R. Tomes describes the capture of the specimen obtained in Gloucestershire ('Ibis,' 1859, p. 379) as follows:—"I may commence by stating that the village of Welford, five miles west of Stratford-on-Avon, where the specimen was obtained, is situated in a bend of the Avon, and that the soil is a rich alluvium. Its position is highly favourable for the growth of timber and fruit-trees; and it is well shrouded in orchards and small enclosures, fringed with their hedgerows and ivied elms, affording a favourite haunt for many of the smaller birds, with a good supply of cherries and other fruits in the summer months, and of berries through the autumn and winter seasons. From a cherry-orchard, a few miles down stream, I obtained, a few years since, a specimen of the Rose-coloured Pastor; and Starlings and Thrushes abound. Of insect-feeders there is an equally good supply; and I have had more than one opportunity of inspecting the nesting of the Lesser Spotted Woodpecker.

"In a small grass inclosure immediately adjoining the village, and thickly surrounded by elms, a friend of mine observed a bird rise from a dry leafy ditch, which, at the first glance, was mistaken for a Woodcock, but soon recognized as one of the Thrush kind. This happened on the 6th of January; and on hearing the account I stimulated further search, but without effect until the 23rd of that month, when the bird was again flushed from the same inclosure, and, as before, from the bottom of a dry ditch amongst dead leaves. Again on the 26th it rose from the same ditch, and within a few yards of the same spot. On each occasion it was busied in turning over the dead leaves, from beneath which it appears to have taken its food. Although Blackbirds, Thrushes, and Missel-Thrushes were abundant and seen at the same time feeding on the ivy and hawthorn-berries, the present bird was always observed to resort only to the trees or hedges when disturbed, and then merely as a place of rest, remaining for

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* J. G. Gmelin the Siberian traveller, not J. F. Gmelin, the compiler of the 13th edition of Linnæus.

some time perched in an upright position in one spot, without noticing the berries or the species feeding on them. Its flight, when roused from its feeding, was very undulating, like that of the Green Woodpecker, and low, often settling on the ground, and only making choice of a tree when it happened to pass under one, into which it rose almost vertically. As far as its habits could be ascertained from these short opportunities of observation, it would appear to be almost entirely a ground feeder."

The above description of the habits of White's Ground-Thrush accords well with what little is known respecting them in the bird's true haunts. All the Thrushes are, to a certain extent, ground feeders; but the members of this genus (*Geocichla*) are, *par excellence*, "ground"-Thrushes. Beetles, grubs, spiders, worms, and mollusks, found on the ground in humid situations, at the foot of trees, under shrubs, and amongst withered leaves, evidently form its favourite food; and its beautifully mottled plumage blends closely with the tints of surrounding objects, as the Woodcock's russet dress hides him so effectually from view as he sits so quietly amongst the withered autumn leaves. But various berries are also eaten, notably those of the banyan. These berries are most probably eaten as fruits, just as garden fruit is eaten by many of our own insectivorous birds.

As to the bird's claims to the rank of a songster we are still in doubt. No one has yet informed us what his love-song is, or whether he is silent. A closely allied bird, the "Mountain-Thrush" of the Australian colonists (*Geocichla lunulata*), was never heard to sing by Gould during his sojourn in its favourite haunts. But, judging from analogy, it seems probable that the bird has a song, and that when its habits are better known to naturalists we shall have a confirmation of this. Its call-note is somewhat different from that of the Song-Thrush; and when passing through the air on migration it occasionally utters a melodious whistling cry.

The only record of the nest of White's Thrush being taken is of that obtained by Swinhoe in North China, published in Rowley's 'Ornithological Miscellany,' vol. ii. p. 256. Mr. Swinhoe writes:—"It was not until I got to Ningpo, in 1872, that I found that White's Thrush spent the summer in the wooded parts of the hills around that neighbourhood; and I thence conclude that it resides in similar hills, in summer, all down the coast of China, resorting to the plains and gardens in its winter migrations. In May 1872 I resided for a time at a large temple near Ningpo called 'Chinhooze,' in the midst of woods situated on a hillside. Some boys pointed to a nest hidden in the upper branches of a high pine tree, and asked if they should climb to it. Thinking it was a Blackbird's, I assented, and then wandered away. Soon after I met the boys, who carried in their hands the nest (to all appearance that of a Blackbird), with three eggs, which, though so like a Blackbird's, had the dots so minute that they struck me as being of an allied species, probably the *Oreocincla.* I went back to the tree; and on the bough where the nest had been were the parent birds in trouble at their loss. I saw them distinctly, and recognized them as being of this species."

This nest, with two of the eggs, is now in my collection. It was built on a fork on a horizontal pine-branch, and is about 2½ inches deep inside, and about 4 inches outside, 7 inches in outer and 4½ inches in inner diameter. The outside is composed of withered rushes, fine and coarse grass, and moss, with an occasional twig and withered leaf, and plastered most copiously with mud. Here and there are a few pieces of some green weed, apparently conveyed in the mud from the swamps. The inside is lined with a thick coating of mud, like the nests of our own Ring-Ouzel or Blackbird; and is then finally lined with fibrous rootlets, quite as coarse as those the Magpie uses, and one or two pieces of sedgy grass. In general appearance the nest resembles most closely a common Magpie's without the sticks—just the mere cup, and is far more coarsely made than the nests of the true Thrushes. The eggs, greenish white with minute reddish spots, were three, although most probably the full number had not been laid. They resemble those of the Missel-Thrush; but the ground-colour is slightly paler, and the spots much finer, more numerous, and more evenly distributed. They measure 1·2 inch in length and 0·9 inch in breadth.

The whole upper plumage of White's Thrush, which is ochraceous brown, and the under plumage, which is white, tinged with buff on the breast, is boldly marked with black crescentic spots. The wings are brown, margined with buff; and the wing-coverts also are tipped with the same colour. The tail, which is composed of fourteen feathers, has the four central ones ochraceous brown, the rest dark brown, all more or less broadly tipped with white. Bill brown above, pale below. Legs and feet yellowish brown. Irides dark brown. The sexes are presumably the same.

White's Thrush has many very near allies; but most of them may at once be distinguished by having only twelve tail-feathers. Two, however, have fourteen tail-feathers: one (*Geocichla hancii*) is simply a greyer-coloured bird, which may be regarded as little more than a local race that has apparently become a resident in the island of Formosa; the other is an unquestionably good species (*Geocichla horsfieldi*), which is a resident in the island of Java. In this species the general colour of the upper parts is ochraceous brown instead of olive-brown, and the pale ochraceous brown subterminal spots, which are found in White's Thrush on the feathers of both the head and back, are confined to the head only. The wing, probably in consequence of its having ceased to migrate, has become rounder, the second primary being intermediate in length between the fifth and sixth, instead of between the fourth and fifth.

GEOCICHLA SIBIRICA.

SIBERIAN GROUND-THRUSH.

Turdus sibiricus, *Pall. Reis. Russ. Reichs*, iii. p. 694 (1776); **et auctorum plurimorum**—*Vieillot, Temminck, Gould, Bonaparte, Gray, Newton, Dresser*, &c.
Turdus auroreus, *Pallas, Zoogr. Rosso-Asiat.* i. p. 448 (1826, ♀).
Turdus leucocillus, *Pallas, Zoogr. Rosso-Asiat.* i. p. 450 (1826, ♂).
Turdus atrocyaneus, *Homeyer, Isis*, 1843, p. 604.
Turdus mutabilis, *Temm. fide Bonap. Compt. Rend.* xxxviii. p. 5 (1854).
Cichloselys sibiricus (*Pall.*), *Bonap. Cat. Parzud.* p. 5 (1856).
Oreocincla sibirica (*Pall.*), *Jaub. et Barth.-Lapomm. Rich. Orn.* p. 202 (1859).
Oreocincla inframarginata, *Blyth, Journ. As. Soc. Beng.* xxix. p. 106 (1860).
Turdus inframarginatus (*Blyth*), *Gray, Hand-l. B.* i. p. 254 (1869).
Geocichla mutabilis (*Temm.*), *S. Müller, fide Blyth, Ibis*, 1870, p. 167.
Merula sibirica (*Pall.*), *Dyb. Journ. Orn.* 1872, p. 437.
Turdulus sibiricus (*Pall.*), *Hume, Stray Feath.* vi. p. 255 (1878).
Geocichla sibirica (*Pall.*), *Seebohm, Cat. B. Brit. Mus.* v. p. 180 (1881).

The only claim of the Siberian Ground-Thrush to be included in the list of British birds rests upon a single example which was sent to Mr. Bond by a dealer who informed him that it was a variety of the Redwing that had been shot between Guildford and Godalming in the winter of 1860–61. The evidence is not very satisfactory. There can be no doubt that dealers are under very great temptation to pass off foreign skins as British-killed. Although it is the boast of Englishmen that they are more truth-speaking than any other race, it is unfortunately the fact that amongst our shopkeepers and merchants there are many who do not scruple to lie for the sake of gain. But although ornithologists are perfectly justified in looking with suspicion upon examples of rare birds whose only authentication as British-killed is the word of a dealer, there does not seem to be any reasonable ground for doubt in the present case. Twenty years ago skins of the Siberian Ground-Thrush were so rare in collections that it would have been extremely difficult for a dealer to procure one, and the price was so high that the temptation to obtain an extra profit by passing a foreign skin off as British can scarcely be said to have existed. So far as is known, the Siberian Ground-Thrush is confined during the breeding-season to Eastern Siberia; and this fact may of itself be supposed to be an argument against its occurrence on our shores, were it not for the circumstance that the accidental appearance of Siberian birds in Europe is so common. One of the most extraordinary facts connected with that most extraordinary island of Heligoland is that these accidental occurrences occur almost regularly. I am not aware that the Siberian Ground-Thrush has occurred on Heligoland; but I have lately examined a female of this species in the collection of my friend Eugene von Homeyer which was shot on the 25th of August 1851 at Elbing, near the Gulf of Danzig. Other occurrences in Europe have been recorded, from the Hartz Mountains, from Upper Silesia, from the Lower Oder, from the island of Rügen, from France, Belgium, Italy, and Turkey. The Siberian Ground-Thrush breeds in the valleys of the Yenesay and the Lena, between lat. 67° and 68°, and also near Yokohama in Japan. It winters in China, Burma, Sumatra, and Java, and has once occurred on the Andaman Islands.

When Dresser's 'Birds of Europe' was written nothing whatever was known of its habits or its breeding-haunts. I am sorry that I cannot give many particulars respecting these. When I was in Siberia I occasionally caught a hasty glimpse of a dark-coloured Thrush with a very conspicuous white eyebrow, not far from the village of Koorayika on the Arctic circle, whilst the remains of the ice were still straggling down the Yenesay. It was an extremely shy and wary bird; and though I occasionally saw it crossing the open ground between the birch-plantations, I did not succeed in shooting one until the 19th of June. I was then walking in a dense birch-plantation; the leaves were not yet out on the trees; and a fortnight before the ground had been covered with a thick bed of snow. This had melted and exposed a thick bed of leaves, the accumulation of many years. As I was walking along I noticed a bird at some distance before me on the ground, and presently caught sight of its white eyebrow. The bird was very busy searching for food amongst the dead leaves; and I had the good fortune to secure it. It proved to be a fine male in adult plumage. I saw one or two afterwards in the same locality, but was unable to get within shot. I did not see it further north than the Koorayika; but my travelling companion, Mr. Boiling, assured me that he saw one in lat. 68°, and I found that it was well known to the inhabitants as the *Chŏrnoi Drōzht*, or Black Thrush. They informed me that it was by no means uncommon during the breeding-season at Toorokansk. Messrs. Blakiston and Pryer, in their notes on the Birds of Japan (Ibis, 1878, p. 241), state that this bird is possessed of a not very loud but sweet song, for which reason it is a favourite cage-bird there. Nothing whatever is known of its eggs or nest.

The male bird is dark slate-grey, with a very conspicuous white eyebrow, and with the centre of the belly, the tips of the under tail-coverts, a spot at the end of the outside tail-feather on each side, and the peculiar Geocichline pattern on the under surface of the wing pure white. Bill black; legs very light brown; irides dark hazel. The female differs from the male in having the upper parts olive-brown, shading into dull slate-grey on the rump and upper tail-coverts; eye-stripe buff, shading into white on the nape; wings and wing-coverts russet-brown; underparts white, shading into brown on the flanks, and into buff on the breast, each feather tipped with olive-brown. Males of the year are suffused with brown on the head and wings, and have ochraceous tips to the greater and some of the median wing-coverts; the chin and throat are also suffused with ochraceous, and the throat and breast are barred.

Genus TURDUS.

The genus *Turdus* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 291, and *T. viscivorus* has by common consent been accepted as the type. It contains the true Thrushes, which may be distinguished from the Ground-Thrushes by not having the peculiar Geocichline pattern on the wing, and from the Ouzels by having the throat streaked and the sexes alike.

The true Thrushes are most abundant in the Neotropical Region, whence about five and twenty species have been described, and in the Æthiopian Region, where about a dozen species are resident. Half a dozen species or more are peculiar to the Nearctic Region, whilst in the Palæarctic Region only five species occur, of which two are residents in our islands and two winter visitors.

The Thrushes are closely connected with the Ouzels. The haunts they affect are almost entirely arboreal; and in their habits they do not differ from the Ouzels. They are even more sociable than the preceding group of birds. Like them they possess great powers of song, being probably amongst the finest songsters in the world. They all build open nests, well made and compact, of dry grass, sticks, moss, and mud, and place them usually in bushes, sometimes high up in the branches of trees, and more rarely on the ground. Their eggs are from four to six in number, varying from clear bluish green to green in ground-colour, spotted and mottled with various shades of brown. Their food also does not differ from that of the Ouzels.

TURDUS VISCIVORUS.

THE MISSEL-THRUSH.

(PLATE 8.)

Turdus major, *Briss. Orn.* ii. p. 200 (1760).
Turdus viscivorus, *Linn. Syst. Nat.* i. p. 291 (1766); **et auctorum plurimorum**—*Latham, Pallas, Temminck, Naumann, Bonaparte, Newton, Gould, Sharpe, Dresser*, &c.
Sylvia viscivora (*Linn.*), *Savi, Orn. Tosc.* i. p. 208 (1827).
Ixocossyphus viscivorus (*Linn.*), *Kaup, Natürl. Syst.* p. 145 (1829).
Merula viscivora (*Linn.*), *Selby, Brit. Orn.* i. p. 158 (1833).

The "Stormcock," as this bird is popularly called, is one of those few species which, during the progress of very recent times, has extended its range in the British Islands. This extension has taken a northerly direction, and may be attributed to a variety of causes—tree-planting and the laying-out of shrubberies and pleasure-grounds being possibly the chief encouragement. So far as the earlier history of the Missel-Thrush has been recorded, the bird was an inhabitant of the sheltered places, the pastoral districts of the lowlands; but from them it has gradually spread itself over more isolated and northerly plantations, woods, and coppices, up to the moorland wastes. It may now be said to be a common bird in most sufficiently wooded localities throughout Great Britain and Ireland, becoming rather more local and rarer in the extreme north. The Missel-Thrush has gradually spread itself over the Western Isles of Scotland. In Skye Missel-Thrushes were fairly numerous up to the severe winter of 1879–80, since which time the birds have almost entirely disappeared again. Dixon during his stay in the season of 1881 found one nest of this bird on the wooded banks of a burn; but now the bird is certainly a rare one there. Upon the Orkneys it is sometimes found after easterly gales—birds most probably blown out of their course during migration; but it has not yet been recorded from Shetland. Upon the European continent the Missel-Thrush breeds throughout the temperate portions, extending on the west coast as far north as the Arctic circle. Eastwards it ranges through Turkestan to the North-west Himalayas and Lake Baikal. In many of the milder portions of its haunts the bird is resident, or is subject to internal migration from the hills to the valleys; but by far the greater number winter in Southern Europe and North Africa, a few birds remaining to breed in the former locality, the Siberian birds wintering in South Persia, and the Indian ones seeking the lower valleys and sheltered districts at that season.

The haunts of the Missel-Thrush are considerably diversified, the rich, well-cultivated districts and the borders of the moorlands being equally tenanted by them. In the former situation it is usually found in the neighbourhood of large gardens, in orchards, shrubberies, small woods, and plantations, and especially in well-wooded parks and pleasure-grounds. On the borders of the upland wilds it frequents the fir-plantations, wooded roughs, and the banks of mountain-streams and coppices of birch and alder. The Missel-Thrush is found in Great Britain throughout the year; but it is subject to some little internal migration. For instance, the birds that frequent the upland districts in summer retire to the lower lands in winter; and birds from the more isolated woods and coppices draw nearer to the cultivated districts should the weather be severe. But these remarks apply to our indigenous birds alone. The rigours of a northern winter send the Missel-Thrush southwards; and considerable numbers of these migrants remain on our shores throughout the winter, arriving at the same time as the Fieldfare, with which bird they often associate. Although for the greater part of the year the Missel-Thrush is a non-gregarious bird, still in the early autumn, when the breeding-season is over, and the young birds are strong on the wing, a sociable disposition manifests itself. The birds are then seen in little parties; and as the autumn progresses they congregate in considerable flocks, very often being mistaken for early arrivals of Fieldfares. At this season the Missel-Thrushes are extremely wild and wary, and are usually seen on the turnip-fields or newly-ploughed lands in the early morning, and later in the day on the grass-fields and stubbles. In the turnip-fields they choose the parts where the crop has been cleared off, and, as a rule, do not skulk under the broad leaves, like the Song-Thrush; but they are, nevertheless, easily alarmed, and take wing the instant danger threatens, rising into the air, and flying from tree to tree, uttering their harsh and grating cries both as they fly and when they are at rest in the tree-tops. As the year begins to wane and the leafless twigs tell of the approach of winter, these bands of Missel-Thrushes, from some unknown cause, disperse; and for the rest of the winter the birds either live in solitude or congregate in small parties only. Although in the nesting-season few birds excel the Missel-Thrush in trustfulness, at all other times of the year he is a shy and wary bird, and rarely comes near houses, save when hard pressed for food. Missel-Thrushes, as a rule, fly much higher than Song-Thrushes or Blackbirds. They are capable of flying with great swiftness, and have considerable command over themselves in the air—witness their motions round the head of an intruder when in the neighbourhood of their nest. At other times they fly with a series of rapid beats with but short intervals of cessation, and with but very little undulation. The Missel-Thrush when about to alight on a tree usually ascends some little distance to a perching-place. It is a decided inhabitant of trees and shrubs, except when in search of food, which for eight months in the year is found chiefly on the ground. The remaining four months he is for the most part a berry feeder, although, if the weather be mild and open, we find him pretty frequently on the grasslands in company with the Redwing.

The Missel-Thrush is partly graminivorous and partly insectivorous, according to the season of the year. In the spring and summer it is seen on the pastures just as frequently as the Blackbird; but, unlike that species and the Song-Thrush, it never seeks its food under the evergreens and hedgerows, but always in the open. On the grass it obtains earthworms, snails (both those with and those without shells), larvæ of various kinds, and insects. In the late summer, and throughout the autumn, fruit and berries are largely sought after. This fare is obtained in gardens as well as woods, and is composed of cherries, gooseberries, raspberries, and in the upland districts the various moor fruit and the berries of the mountain-ash. The berries of the service-tree in the autumn months are perhaps more eagerly sought after by the Missel-Thrush than any other food. Where the trees are covered with fruit the birds may be seen incessantly, frequenting them until they are entirely stripped. In late autumn and in early spring, when sowing-operations are in progress, the Missel-Thrush will frequent the fields and pick up the scattered grain, varying this fare with grubs and insects. In winter the bird is to a great extent a wanderer. Its food is largely composed of berries of the hawthorn; and, like the Fieldfare, it wanders from one district to another. The berry that is perhaps most closely associated with the Missel-Thrush is that of the famous parasite the misseltoe. Popular opinion regards this waxen berry as the staple food of the "Stormcock," and assumes that the bird is the principal disseminator of this parasitic plant. Pliny even propounded the startling theory that the berries of this plant will not germinate unless they have previously passed through the intestines of birds, notably of the Missel-Thrush! This bird does not eat the berries of the misseltoe to such an extent as is popularly believed. In districts where this plant abounds it is rarely found denuded of its berries, although the Missel-Thrush may be the commonest of birds in the neighbourhood. The berries of the hawthorn, the ivy, and the service-tree are its staple food in the winter season. It is not at all improbable, however, that when the birds do occasionally eat the berries of the misseltoe the seeds are disseminated by their clinging to the bill of the bird, who, to rid itself of them, cleans it on the bark, and thus unwittingly places them in some crevice where they eventually germinate. The Missel-Thrush sings throughout the winter. In early autumn, after being silent throughout the breeding-season, he regains his powers of song, and may be heard to sing until the nesting-season in the following spring. No sooner has this time arrived than the "Stormcock" drops his wild melody, and, unlike all his congeners, performs the duties of breeding in silence. The song resembles in some of its tones that of the Song-Thrush and Blackbird; but it possesses a peculiar loudness and wild variation strictly its own, and may, by one who pays attention to the songs of birds, be instantly distinguished from the notes of any other British songster. Like the notes of the Ring-Ouzel, it is somewhat monotonous, but rich and mellow. Before the first streak of dawn shoots across the dull wintery sky, the Missel-Thrush may be heard pouring forth his wild carol; and in the evening, when the dusk is falling, he sings equally well. But perhaps the time the "Stormcock's" song is heard to best advantage is on some wild day when part of his performance is drowned by the storm. Perched on the leafless branches of a lofty tree, he sits and warbles forth his song amidst the driving sleet and the roaring tempest. Should you disturb the Missel-Thrush when singing, he usually drops silently down and awaits your departure, though sometimes he merely retires to a neighbouring tree and warbles as sweetly as before. The call-notes of the Missel-Thrush are extremely harsh and discordant, resembling those of the Song-Thrush, yet infinitely louder and harsher.

Missel-Thrushes pair about the first week in February, and at that season they are very pugnacious; and when paired they often frequent the locality of their nest weeks before a twig is laid in furtherance of it.

Very probably, on account of its exceptional wariness of disposition, the Missel-Thrush prefers somewhat different nesting-sites, and, to a certain extent, breeding-grounds, from those of its near allies the Song-Thrush and the Blackbird. Still much of this inherent wariness disappears in the breeding-season, and it will frequently rear its young in the most exposed situations. The Missel-Thrush is an early breeder, commencing in some cases in February; and two (and sometimes three) broods are reared in the season. Its nest may be found on most of the forest trees, and but rarely in the bushes. The birch-copses, larch-plantations, woods, and orchards are its favourite haunts, and in some cases trees standing alone, especially a road-side oak or elm. A favourite situation is the alder trees bordering a stream, even on the banks of the mountain-torrents on the moorlands. The nest is built at various heights, sometimes only a few feet from the ground, at others near the topmost branches. You never find it in the slender twigs, but either placed on some horizontal bough away from the trunk, or on a suitable fork of the main stem. Instances are known of the bird building in evergreens, only a few feet from the ground; but such cases are exceptions; indeed this bird seems to have a peculiar aversion to using evergreens for a nesting-place.

No other British Thrush exposes its nest in such a seemingly careless manner as the "Stormcock;" yet it is surprising how often it escapes detection in its open position until the young are safely reared. This may be partly attributed to the bird's quietness of disposition; for few birds are so silent in the breeding-season, until it is aware that its nest is discovered. Probably few other British bird's nests exceed in picturesqueness the home of this Thrush. There is a peculiar rustic beauty about it which few others possess. Like the nest of the Blackbird (indeed of all the Thrushes), it undergoes three distinct stages before completion. First, the outside is composed of grass, chickweed, bog-moss, and often large masses of wool, through which are artfully woven a few slender twigs to strengthen the sides of the structure. This nest is lined with mud or clay; and, lastly, a very thick lining of grass, usually in a green state, completes the work. No attempt at concealment is made; indeed it seems that the birds rather court discovery than otherwise; for it is no uncommon thing to see a large piece of wool hanging loosely from a nest, or a portion of the nest itself so lightly put together as to cause it to arrest the attention at once. The eggs of the Missel-Thrush very rarely exceed four in number, and in but very few cases are less. They are somewhat different from the typical Thrush's eggs, being of a greyer tinge. The ground-colour ranges from bluish white to reddish brown, spotted, blotched, and clouded with various shades of rich purplish brown and with greyish underlying spots. They vary considerably in size, form, and colour, very often in the same clutch. They vary in length from 1·32 to 1·03 inch, and in breadth from 0·94 to 0·8 inch.

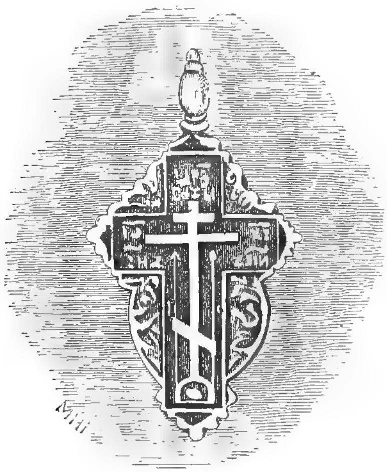
Missel-Thrushes are amongst the noisiest of birds should their nest be menaced by danger. Uttering their harsh grating cries, they fly round the intruder's head and do their best to make him quit its vicinity. No Thrush is bolder or more vigilant; and the Magpie, the Jay, and even the Sparrow-Hawk are often frightened away by the vigour of their attack.

The Missel-Thrush, from its superiority of size, cannot readily be mistaken for any other British Thrush. Its colouring is chaste, the whole upper parts being olive-brown, more or less suffused with rufous on the back; the underparts are white, boldly spotted with large dark brown fan-shaped spots. Bill dark brown, paler at the base. Legs pale brown. Irides dark brown. Its pure white axillaries will serve to distinguish it from all other British Thrushes except from the Fieldfare, whose slate-grey rump contrasts strongly with the ochraceous brown rump of the Missel-Thrush.

Eastern examples of this species from Turkestan and North-west India are slightly greyer in the general colour of the upper parts, and are, on an average, larger in size, European examples varying in length of wing from 6·1 to 5·6 inch, whilst examples from Turkestan and India vary from

6·7 to 6·0 inch. In Asia Minor intermediate forms, however, occur, varying in length of wing from 6·15 to 5·85 inch. Some ornithologists consider the Eastern form a distinct species, which they recognize under the name of *Turdus hodgsoni*; but as intermediate forms occur, it can only rank as a subspecies or local race.

American ornithologists would undoubtedly call this bird *T. viscivorus*, var. *hodgsoni*. There can be no doubt that this form of nomenclature, though somewhat complicated, has the great advantage of showing at a glance the affinities of the bird. It is impossible for our nomenclature to denote the degree of relationship which exists between species. To attempt to express this would be to return to the old mode of designating a species by a sentence. Were these local varieties rare, ornithologists would not have much difficulty in remembering which names only represented subspecific forms; but modern researches have shown us many local varieties, and there can be little doubt that many more remain to be discovered. If we still retain the binomial system of nomenclature for all these local races, our catalogues of birds will be doubled if not trebled in length, and will become exceedingly misleading. I see no other alternative to avoid this except to join our American ornithologists in reviving the system of nomenclature originally proposed by Linnæus and already adopted by botanists.



TURDUS MUSICUS.

THE SONG-THRUSH.

(Plate 8.)

Turdus minor, *Briss. Orn.* ii. p. 205 (1760).
Turdus musicus, *Linn. Syst. Nat.* i. p. 292 (1766); **et auctorum plurimorum**—*Latham, Bechstein, Pallas, Temminck, Naumann, Newton, Gould, Gray, Sharpe, Dresser*, &c.
Turdus iliacus, *Linn. apud Bodd. Table Pl. Enl.* p. 24 (1783).
Turdus pilaris, *Linn. apud Bodd. Table Pl. Enl.* p. 29 (1783).
Sylvia musica (*Linn.*), *Savi, Orn. Tosc.* i. p. 211 (1827).
Merula musica (*Linn.*), *Selby, Brit. Orn.* i. p. 162 (1833).
Iliacus musicus (*Linn.*), *Des Murs, Traité d'Ool.* p. 292 (1860).

The Song-Thrush breeds throughout Great Britain and Ireland in all well-cultivated districts, or where the ground is sufficiently wooded to afford it shelter. In the extreme north of Scotland, although birch trees abound, the bird is rare, but appears to be increasing in numbers. It breeds in the Orkney Islands; but its nest has not yet been taken in the Shetlands. On the Hebrides, even to the wild isolated rock of St. Kilda, the Song-Thrush is found, and in many of the islands it is quite numerous. In Skye it is one of the commonest of land birds, and is sometimes seen far amongst the wide stretches of heath where not a tree or bush is visible. The bird also breeds on the rocky heights of Ailsa Craig, where its only nesting-sites are amongst the rocks and caves.

The breeding-range of the Song-Thrush extends across the Palæarctic Region from the Atlantic as far east as the valley of the Yenesay and Lake Baikal, but the bird is much commoner in the west than in the east. In Norway, probably in consequence of the influence of the Gulf-stream, it is found up to, and occasionally beyond, the Arctic circle; but in Siberia it is rarely met with north of lat. 60°. In Southern Europe it breeds very sparingly, and only at high elevations. In England the Song-Thrush is only a partial migrant; but on the continent, where the winters are so much colder, it leaves the north, like other summer visitors, and repairs in great numbers to winter in South Europe and North Africa. In the latter continent it has been found wintering as far south as Nubia. The Siberian Song-Thrushes apparently winter in South Persia.

The home of the Song-Thrush is the woods and hillsides, the banks of streams, and all sheltered places where brushwood abounds. Near dwelling-houses the "Throstle" is a common bird, frequenting orchards, gardens, and hedgerows; in fact, wherever we find the Blackbird we may expect to find the Song-Thrush. Like that bird, his favourite haunt is the bright glossy foliage of evergreens. Amongst the wild scenery of the Highlands the Song-Thrush gladdens the moorland wastes, and his varied melody is often heard amidst the mountains.

The Song-Thrush is a skulking bird, although not perhaps so much so as the Blackbird. It is extremely fond of hiding under dense thickets and the broad close foliage of evergreens where the branches sweep the ground. It is here the birds obtain much of their food; and in some cases regular paths are made through the dense underwood, especially behind walls or hedgerows, which often put you in mind of a weasel's "run." Indeed the Song-Thrush is, of all other birds, perhaps the most frequently caught in the "figure of four" traps set for weasels, owing to its peculiar habit of hopping under the brushwood. Like the Blackbird, it is flushed with difficulty when in these situations, and always prefers to hop quickly along the ground rather than take wing. When flushed it flies rapidly away, and alights suddenly, as though anxious to enter the nearest suitable cover and hide itself as quickly as possible. The Song-Thrush is more often seen above the tree-tops than the Blackbird, and will take long and rapid flights to and from its feeding-grounds at some elevation, seldom uttering a note. It becomes unusually vociferous towards evening; and its chattering cry is heard well into the night. Autumn, or, perhaps, still more in the last few fine days before winter fairly sets in, its garrulity is the greatest. Then in the wooded depths of his roosting-place you hear his sharp cry, almost like the noise made by a ratchet-drill, which he keeps up as he flits from place to place long after it begins to be dark, and when most other birds have retired to rest. Upon the ground the Song-Thrush proceeds in a series of hops, seldom if ever running or walking. His attitude when in the act of listening intently is with the wings drooping slightly, tail almost horizontal, and head slightly raised; but he never elevates his tail upon alighting like the Blackbird.

More than twenty years ago Professor Newton endeavoured to show in the pages of the 'Ibis' (1860, p. 83) that the Song-Thrush was a regular migratory bird in Great Britain. My own observations as well as those of Dixon and others confirm this theory. This fact has been overlooked by most British writers; but continental naturalists class the bird as a regular migrant. In our own country, as soon as the days of summer decline and autumnal tints appear in the landscape, the Song-Thrush is seen in little companies; and as autumn passes away, and the fogs and chilly nights of November arrive, the birds nearly all take their departure, and where they once swarmed only one or two solitary individuals are to be seen. The Rivelin valley, a few miles from Sheffield, is annually the scene of an unmistakable migration of the Song-Thrush. Late in autumn the birds for a few days literally swarm in the Rivelin copses, where at all other times of the year they are absent altogether, or nearly so. Although the birds abound here so plentifully they are not at all gregarious: social they may be; yet each seems to confine itself to its own affairs, to fly off alone, and apparently to live by itself. By the latter end of January or early in February, when the first faint signs of approaching spring are seen, the Song-Thrushes are back once more in their old haunts. There can be little doubt that they migrate, like the Redwing, in the night; for one day not a bird is to be seen in their favourite haunts, but the next their mellow varied song fills the air. Instantly upon their arrival they are in full song, and pairing begins at once. Heligoland is an excellent post of observation for seeing the migration of the Song-Thrush. On the eastern end of this interesting little rock are the "throstle-bushes." The island contains scarcely any trees or shrubs, and is for the most part laid out in potato-patches. These "throstle-bushes" are erected by the inhabitants, and have a net on one side, into which the poor Thrushes are driven with lanterns and sticks the instant they alight. By the side of these artificial bushes the Heligolanders watch on favourable nights for the arrival of the birds. Aeuckens, the bird-stuffer there, related to me with great gusto how, suddenly, a rush and whirl of wings would be heard, and, without a moment's warning, the throstle-bushes would swarm with Thrushes, not dropped, but as if shot like an arrow from a bow perpendicularly down from the invisible heights of mid-air. The number of Thrushes thus caught is almost incredible, it being no unusual thing for several hundreds to be taken in a single night, thus clearly proving to what a very great extent the Song-Thrush is a migratory bird. In our own land we suspect the reason this migration has been overlooked is from the fact that the birds leave so quietly, and that the Redwings take their place and are mistaken for them.

At feeding-time in early morning and evening the actions of the Song-Thrush may be best observed. Watch him hop cautiously from the laurels, just venturing a yard or so upon the lawn, and, with body crouching low amongst the grass, stand motionless for a few moments as if fearful of being discovered so far out in the open. Note well his elegant and sprightly form, his neat trim figure, his richly spotted breast, and large bright eye, as he sits so wary, yet unconscious of your presence. See him at last hop quickly forward and pull out a worm with a jerk from its hole in the earth, and swallow it at once. Not a sound escapes him as he hops hither and thither in search of worms, grubs, and snails, or snaps now and then at a passing fly. But your careless movements have alarmed him; he crouches low and timid for a moment, and then takes himself off to the cover whence he came. Although the Song-Thrush does not feed on berries so much as the Blackbird or the Fieldfare, still it eats them freely in autumn and early spring, especially those of the mountain-ash, the hawthorn, and the wild rose. The Song-Thrush is not so much a fruit feeder as the true Ouzels. He eats a few of the wild fruits of the woods, such as the blackberry, raspberry, and wild strawberry, and even visits the garden in cherry-time; but his food is far more animal than vegetable. The Song-Thrush is a large feeder on the snails whose pretty shells are found in almost every hedgerow. In some retired situation you may not unfrequently find little heaps of shell-fragments near large stones and under the hedges. These shells have been broken by the Song-Thrush to obtain the snails within them, and are a silent proof of the bird's usefulness. This bird obtains much of its food amongst the withered leaves and marshy places in woods and shrubberies, and in autumn frequents the turnip-fields and cabbage-beds in search of snails and grubs. At this season of the year the fields of white turnips especially abound with Song-Thrushes, and you may sometimes flush them almost at every step. These birds are on migration, are only resting here on their journey, and in a few days at most will be again on their way to their winter-quarters. In hay-time the Song-Thrush frequents the newly mown grass-lands near its favourite haunts in search of worms and insects. In all parts of the field they may be seen, some sitting upon the newly mown swathes, others digging away amongst the short herbage. To see them now, the inexperienced observer would think them gregarious birds; but such is not the case, and, as soon as its wants are supplied, each returns to its haunts again, alone and solitary as it came.

The Song-Thrush sings very early in the year, his rich and varied notes commencing as soon as he arrives in his old haunts. From this time forward he warbles incessantly up to the moulting-season in July, when, by the way, birds of the year may often be heard making attempts at song. Dixon writes of the Song-Thrush:—"In Great Britain the 'Throstle's' song is the favourite music of the country, as well known as it is dear to the hearts of all who have opportunity of listening to its strains. Amongst all the ranks of our feathered musicians we cannot find a bird whose melody is so pleasing and varied as that of the 'Throstle.' His notes may be said to be almost endless in variety, each note seemingly uttered at the caprice of the bird, and without any perceptible approach to order. The Song-Thrush warbles throughout the day; but morning and evening are the times that his melody seems the best, and when he sings in largest numbers too. Stray, gentle reader, into his haunts at the dawn of day, when the first streak of morning appears glimmering over the eastern horizon, and surrounding objects are beginning to assume a more decided outline against the grey morning sky; then you will be greeted with his few first notes, his first attempt at music since the previous evening. Gradually it swells into a lovely song, and is carried for half a mile or more along the valley by the gentle zephyrs of early morn. Shortly you will hear another from a neighbouring tree; another and another are heard in rapid succession as the day spreads widely around; and finally the air seems laden with their joyous notes, now intermingled with the charming song of the Robin and Wren, and the rich and flute-like tones of the Blackbird, the whole forming a perfect plethora of music—Nature's morning concert, the morning anthem of the woods and fields. Or should his morning melody not suit your convenience, pay his haunt a visit as the sun nears the western horizon; hear his requiem to the parting day. It may not please so much as his morning song; for then there is a freshness and a vigour throughout all animated nature that probably gilds his performance with a higher charm and lends it an additional sweetness. Still its rich modulations, its infinite variety, and its soothing strains will give unspeakable delight, should the love, the poetry of nature be at all prominent in the soul. Listen, then, to its sweetness till the evening has wrapped the woods in gloom, or the night mist creeps round the mountains, hiding the speckled songster from your view; for he will warble so long as the last streaks of day are visible. But darkness does not always stay his music; and in the hours of midnight, notably near the summer solstice, when the dawn is spreading almost as soon as the twilight leaves the western sky, he will sit and warble too. There is no monotony in the notes of the Song-Thrush; they are for ever on the change; and when the birds are numerous and full of song, the effect produced is indeed a grand one, and far beyond the art of the most graphic pen to describe."

The Song-Thrush delights to sing when the soft summer showers are falling. He will perch among the branches under the broad leaves, or sometimes under a projecting rock, and there warble for hours. He has also been known to sing most vigorously during severe thunderstorms.

The Song-Thrush is a remarkably tame and confiding bird. It is their music which make him and the Sky-Lark so prominent. At most times of the year he is a skulking bird; but as soon as the first signs of the coming spring warn him to chose a mate, he forgets his life of seclusion. Perching on the topmost branches of trees and shrubs, even on walls and other exposed situations, he then fills the air with his rich and powerful notes—notes so indescribably beautiful, so varied, and continued for such length of time, as to irresistibly arrest the attention and win the warmest admiration. A peculiarity in the song of this bird, which distinguishes it from the songs of other Thrushes, is that it constantly repeats itself. No sooner has it uttered three or four notes, than, apparently pleased with the combination, it instantly repeats them. Then it tries another quite different combination, which it as constantly repeats. The song has not the rich full melody of that of the Blackbird; but it is infinitely more varied and generally more prolonged. The call and alarm notes of the Song-Thrush are somewhat varied. Its call-note is a peculiar low cry, something like a Redwing's; its note when alarmed is a harsh guttural cry, more like a low scream than any thing else; and its alarm-notes when its nest is approached, or when disturbed at roost, are harsh chattering cries, almost like those of the Missel-Thrush, yet uttered more rapidly, and perhaps more metallic in sound.

One of the first birds, after winter has passed, to cross a twig as a beginning of its nest is the Song-Thrush. March has scarcely arrived ere we notice the first rude foundation of this charming songster's cradle. We find it in every species of evergreen far more frequently than amongst the branches of deciduous trees:—in the trailing ivy on walls or rocks or growing up the trunks of trees at various heights from the ground; in the dark-mantled yew, the laurel, and, perhaps most frequently of all, in the green branches of the holly. It is also placed on the ground on banks, in whitethorn trees and hedgerows, and more rarely on walls. A favourite situation is against the trunk of a tree, upon a bunch of little branches that partially conceal it. Here the bird may often be seen sitting close, with tail pointing one way and beak the other, each at the same angle to the plane of the nest, and you may pass almost under it or even catch the bird's eye if you walk quietly past, without causing it to leave its eggs. The nest is a bulky structure, and composed outwardly of dry grass, with generally a few twigs and sometimes a little moss. This grass-formed nest is then lined with a thick coating of mud or clay, and sometimes cow's dung, with decayed wood as a final lining. As the Song-Thrush is the only Thrush that lines its nest in this peculiar manner, a detailed description of the process may not be out of place. Decaying fences and tree-roots, or rotten branches torn from the trees by the wintry blasts, are the source from which the bird obtains a supply of this material. When her nest has arrived at a certain stage, she repairs to this decaying wood for the means of completing her handiwork. She choses those logs, fences, or roots already well saturated with moisture; or failing to find them in this state, she moistens the wood in the nearest water. Bit by bit it is conveyed to her nest, and there, by the aid of pressure, she moulds it with her body, forming a lining in some instances an eighth of an inch in thickness, and which, from the warmth of the sitting bird, soon becomes hard and dry. Nests are, however, met with where this lining is very scanty—probably from the scarceness of decaying wood. When finished the nest is usually left for a day or so to dry ere the first egg is deposited. Several days are employed in its construction, although in rare instances it is begun and finished in a single day. Dixon gives the following in the article on the Song-Thrush in his 'Rural Bird-Life:'—"I found a nest of the Song-Thrush in a small yew bush, and in a very exposed situation, which I removed. Three days afterwards I again visited the place, and was surprised to find that the birds had almost completed a fresh nest. I removed this also, and visited the place the following day, when I was still further surprised to find that the little songsters had almost completed a third nest, so attached were the little architects to their somewhat ill-chosen site. This structure, however, was removed like the former ones; and on the evening of the following day a fourth nest was there, and the bird upon it, putting the finishing touches; and an egg was laid the following day; for I could not find it in my heart to remove this their fourth piece of handiwork. I may add that all the nests were excellently made."

The eggs of the Song-Thrush are four or five in number, and may readily be distinguished from those of any other species of British bird. They are of a beautiful clear greenish blue, marked with small spots of a deep rich brown approaching to black. Eggs of this bird vary considerably, both in size and markings. Many eggs (doubtless the production of the older birds) are exceptionally large; others more resemble the Redwing's in size. Some eggs (though these are rare) are spotless; others are very richly spotted and blotched with reddish brown and various tints of purplish grey. Eggs that are boldly blotched never have the colouring-matter so intense as those on which the markings are small. They vary in length from 1·16 to ·95 inch, and from ·9 to ·7 inch in breadth.

The Song-Thrush is a very close sitter, often remaining upon her charge until touched by the hand of some prying naturalist. Her conduct when disturbed from the nest is similar to that of the Missel-Thrush; her harsh cries and active motions, with those of her mate, awaken the silent woods, and speak most plainly of the anxiety of the birds for their treasure. Both birds sit upon the eggs and young, and tend their young for a short time after they have left the nest. The Song-Thrush rears two, and occasionally three, broods in the year, a fresh nest in all cases being built for the purpose.

The general colour of the Song-Thrush's plumage is olive-brown above, the wing-coverts tipped with rich buff; the under plumage is whitish, with a fulvous tinge on the breast and sides, which, in addition to the ear-coverts, cheeks, fore neck, chest, and flanks, are spotted with black; bill dark brown, paler at the base of the under mandible; legs pale; irides brown. The sexes are alike; but the nesting birds are mottled all over the upper surface with ochraceous buff; yet after the first moult they are like their parents. The abrasion which takes place during winter and spring causes the upper parts to be slightly greyer, much of the yellowish buff on the breast and flanks disappears, and the spots on the underparts become smaller.

The nearest relation of the Song-Thrush is Père David's Thrush (*Turdus auritus*), inhabiting Northern and Western China.

This species appears not to be a migratory bird; and probably from this cause its wings have become rounder; the second primary, instead of being intermediate in length between the fourth and fifth, is very little longer than the seventh. The colours are darker and richer, and the spots more developed. It differs also in the colour of its eggs: Prjevalsky, the great Central-Asian traveller, found it breeding in North China, and states that its eggs are always unspotted blue.

TURDUS ILIACUS.

THE REDWING.

(PLATE 8.)

Turdus iliacus, *Briss. Orn.* ii. p. 208 (1760); *Linn. Syst. Nat.* i. p. 292 (1766); **et auctorum plurimorum**—*Latham, Bechstein, Temminck, Naumann, Gould, Gray, Bonaparte, Newton, Sharpe, Dresser,* &c.
Turdus mauvis, *Müll. Syst. Nat. Suppl.* p. 141 (1776).
Turdus illas, *Pallas, Zoogr. Rosso-Asiat.* i. p. 456 (1826).
Sylvia iliaca *(Linn.), Savi, Orn. Tosc.* i. p. 215 (1827).
Merula iliaca (*Linn.*), *Selby, Brit. Orn.* i. p. 165 (1833).
Iliacus illas (*Pall.*), *Des Murs, Traité d'Ool.* p. 293 (1860).
Iliacus minor, *Des Murs, loc. cit.* (1860).

The Redwing may be distinguished from the Song-Thrush (the only bird in Britain for which it can be mistaken) by the conspicuous creamy-buff or pure white eye-stripe, its reddish flanks, and its gregarious habits. Redwings are perhaps the first winter visitants to arrive on our shores: they are not hardy birds; and their susceptibility to change of temperature undoubtedly influences their migratory movements. They take the place of the Song-Thrush, and give life to the almost otherwise deserted fields, woods, and shrubberies; and their pleasant evening chorus and regularity of movement render them prominent and pleasing objects of the winter landscape.

The Redwing is a regular winter visitant to Great Britain and Ireland. In the west of Scotland the bird does not arrive as soon as on the east coast, and is not so numerous. This is owing to the fact that the birds that winter in the British Islands, principally from Scandinavia, arrive on the east coast of our islands and gradually spread themselves westwards. Another reason that the birds are not so numerous is probably because the districts of the extreme west are less cultivated and afford a less abundant supply of food than the eastern counties. The Redwing is also a common winter bird in the Hebrides, and is said to linger longer in these islands than it does on the mainland. This bird is perhaps most numerous in the midland and southern counties of England, where food and cover are most plentiful. Instances of the Redwing remaining in Britain to breed are on record; but the gravest doubt encircles them all. Until satisfactory evidence is forthcoming of this fact (the birds actually shot and the eggs taken), the cautious ornithologist must question their truth and consider the Redwing a winter visitant only.

The principal breeding-range of the Redwing is at or near the Arctic circle throughout the Palæarctic Region, though it appears to become very rare east of the Yenesay river. It winters in western and southern

Europe, occasionally crossing the Mediterranean into Algeria. In the district of Kasan on the Volga (the same latitude as Scotland) the Redwing only passes on migration. It arrives there in the early part of April, remains the whole of that month and the first half of May, when it again goes northwards. It reappears again in September in large flocks, remaining sometimes as late as the third week in October, frequenting the leafy woods of the Volga islands, which abound with wild rose and mountain-ash, the birds sometimes mixing with the Song-Thrushes, which are there on migration too. In Asia it has been found sparingly in winter in Persia, Turkestan, and North-west India. In the valley of the Petchora Harvie-Brown and I found it as far north as lat. 68°. The Redwing frequents the birch-region and the upper zone of the pine-region, occurring in limited numbers south of the Arctic circle in many places where these trees are found, in South Norway and Sweden and on the Russian shores of the Baltic. It is the most northerly in its range of any of the Thrushes, and occasionally wanders as far as Greenland.

In the valley of the Yenesay it reached the Arctic circle on the 5th of June, a few days before the Fieldfare, and soon began to breed in the willows and birches, generally nearer to the ground than the Fieldfare did. In lat. 71°, beyond the limit of forest-growth, it was still common, but breeding on the ground. I took several of its nests on the sloping banks of the tundra, a little further north than any of the five other species of Thrush which I found in the same valley. I never found it breeding in colonies; but sometimes, in an unusually swampy part of the forest, where the pines were small and stunted, several nests would occur at comparatively short distances from each other. In Lapland, as well as in Russia and Siberia, I found the Redwing commonest where the trees were small, and where open swampy ground separated the forest into plantations. The richness of the foliage in these localities and the brilliance and profusion of the wild flowers reminded me of an English garden run wild; and the presence of the Redwing and other song-birds assisted in the reminiscence, and added greatly to the charm.

The winter haunt of the Redwing is, as a rule, the most cultivated parts of the country—well-wooded parks, pleasure-grounds, and shrubberies, and the adjoining pasture-lands. When once these birds arrive in a certain district, they usually remain there throughout the time of their sojourn in this country—roosting in one certain favourite place, feeding on certain pastures, and, in fact, as regular in their habits and movements as the Rooks themselves. The favourite haunt of the Redwing is a sheltered valley down which a little brooklet runs, with trees scattered here and there, and tall hedgerows of thorn and hazel. They are very partial to small parks thickly timbered and studded with clumps of whitethorn trees, with here and there a cluster of hollies or a dense shrubbery, whither they repair at nightfall to roost. They prefer districts where the evergreens are dense and plentiful—laurels, yews, and hollies a century old or more, and the intervening space between them taken up by thick underwood and forest trees, and where huge sycamores, elms and beeches, oaks and horsechestnut form a regular labyrinth of arboreal seclusion. They feed in the lands adjoining, pasture and turnip-fields, stubbles and meadows, with here and there a "summer fallow." In a district like this, from October till April, the Redwing is a common bird. In the daytime they frequent the pastures; and when the dusk is falling they seek the evergreens of the gardens and shrubberies. Regularly every year the birds will come, and, if they are not molested, remain stationary throughout the winter, giving animation by their presence to the landscape, and filling the wintery air with their cheerful pleasing notes. But the Redwing has other haunts, quite as dear to it as those in our own land. In spring the Redwings seek the northern forests for the purpose of propagating their species. In Scandinavia they frequent the fir- and birch-woods. Here amongst these scattered forests, which lie at the feet of the high stony ranges of the fells, the Redwing finds a summer home. Wild and romantic are its breeding-grounds—plains and valleys, meadow and cultivated land, and dells covered with the marsh-loving alder and willow and birch trees growing in wildest luxuriance. Vast morasses, rivers, inland lakes whose margins are fringed with a heavy growth of various reeds and sedges, forest lands, meadows and plains are the features of the ever-changing landscape. In such wild and secluded regions as these, the border land between forest and fell, the Redwing breeds, far from those busy haunts of men which the bird delights to frequent so confidingly when the blasts of winter render its northern home untenable.

The migrations of the Redwing form a prominent feature in its life-history. When the woodlands are painted with the ruddy hues of autumn and the corn is garnered, the first flocks of the Redwing may be looked for. They come to our islands during the latter days of October—although their arrival is very irregular; for occasionally Redwings come in the opening days of the month, yet in other seasons not a bird has arrived until the first week in November, the state of the season possibly influencing their movements. Redwings, like Song-Thrushes, perform their migrations under the cover of darkness. On the clear starlight nights of October their peculiar call-notes may be often heard as the birds flit across the sky above, invisible of course in the gloom. The Redwing's early arrival on our shores, as compared with that of the Fieldfare, is attributable to two causes. In the first place Redwings are more susceptible to cold than Fieldfares; and, secondly, they are more exclusively insectivorous. At their arrival Redwings are exceedingly shy and wary; but after a few weeks this natural shyness of disposition is overcome, and they are then one of the most trustful members of this charming family of choristers. Towards the latter end of March the Redwings visibly decrease in number, and as the month of April approaches they rapidly leave us for the north; flock succeeds flock; and by the middle of the month few are left behind.

Redwings remain perhaps later on their feeding-grounds than any other British Thrush. As you wander over their favourite pastures at nightfall, when most other birds have gone to rest, you will often flush the Redwings from their evening meal. Here and there they rise from the herbage, uttering their plaintive whistling note, fly quickly off, and are soon lost in the gloom. If disturbed on the pastures in the daytime they rise irregularly, and when in the air there is none of that uniformity or precision of movement observable which is so characteristic of the Common Starling. Redwings pass through the air on rapid wing, often at a considerable elevation; and their flight is rather undulating, being performed by a series of quick flappings, with short intervals between, when the wings are closed, and during which they descend a little out of the direct line of flight. Sometimes, however, Redwings perform *en masse* the most graceful evolutions in the air, almost like a flock of Starlings. This is usually the case when they are disturbed from their roosting-places. They wheel and manœuvre in the air, and pass round and amongst the topmost branches of the forest trees, occasionally dipping near to the earth or alighting on the top of some tall tree, until the cause of the disturbance vanishes, and they can seek their nightly perches in peace. As a rule, except when a flock is going to roost, the Redwing is not a noisy bird; and when a whole tree-top is covered with them only one or two notes will be heard. How different from a flock of Starlings or Bramblings! who seem to delight in making as much noise as possible when congregated together.

Redwings are found in the same localities year after year, and nightly seek the same places for repose. A dense and impenetrable shrubbery is a favourite roosting-place for the Redwing, sometimes for years, especially where the evergreens and tangled brushwood are so dense as to make passage through them almost impossible; and where the tall sycamore and elm saplings and the gigantic forest trees whose rugged stems and limbs are covered with ivy almost like a winter foliage make the place a suitable one in all respects for the concealment and shelter of bird-life, in such a place the timid Bullfinches pipe to each other, the Greenfinches, Chaffinches, and Bramblings congregate in incredible numbers at nightfall, the Ring-Doves and the Titmice are found in greatest plenty, and occasionally the Fieldfare, the Jay, and the Magpie are seen amongst the branches. Early in the evening a few Redwings may be seen sitting quietly on the neighbouring tree-tops, their forms coming sharply out against the clear western sky. The night may be a frosty one, snow lying thickly on the ground, and the broad-leaved laurels bending under their snowy wreaths. But just as evening merges into night, and the moon assumes her borrowed rays, the birds come in flocks from the pastures, their wings rustling in the still evening, and their call- and alarm-notes filling the air around with tumult. Down they settle on the tallest underwood, choosing the sapling trees, where they can best survey the vicinity ere entering the evergreens. One by one they quit these perching-places, or drop quickly down from the surrounding tree-tops, and seek their roosing-places, scattering the snow from the branches as they enter, which falls like bits of ice upon the crisp covering below. Numbers retire to the ivy, others to the yew, whilst many seek the gloomy sprays of the holly. Now and then one will enter the bush under which you are stationed, but, noticing your presence, will quickly seek more suitable quarters. Others come up and perch so silently close to your head that their presence is only revealed when one of them utters its cry of alarm as it takes wing, and you see the sapling quivering from its hasty departure. The air above is resonant with their plaintive whistling call-notes as the birds continue to arrive to seek a suitable resting-place. Almost imperceptibly they settle down to rest: their cries become fewer and fewer; the birds are more rarely seen; and finally the woods are wrapped in silence. During the night the Redwing is as much gregarious as in the day. Numbers seek the same bush in which to roost; and you will often see them billing each other, sitting close together, and preening each other's feathers, as in the pairing-season.

The food of the Redwing, during its winter sojourn in the British Islands, is composed of worms, snails, beetles, various insects, and berries. The Redwing feeds on the open pastures, and never resorts to bushy places, or the ground under hedgerows and near walls, as the Song-Thrush does; nor is it seen in gardens, unless on the evergreen trees and shrubs, or when hard pressed for food. The partiality of the Redwing for worms and insect food is no doubt the primary cause of its permanent residence in one certain neighbourhood throughout the period of its stay; and the bird is not nearly so much a berry feeder as is supposed. True, upon their arrival we find them regaling themselves on the fruit of the service-tree; but this only occurs for a few weeks, and then for the most part they are only seen on the grass-lands. As a proof of this fact, the actions of the Redwing in the severe winter of 1879–80 may be adduced. The lands which they most love to frequent are the marshy meadows in which worms and insects occur so plentifully. As these marshy places began to freeze the Redwings were more and more confined in their feeding-range. Each little swampy place was searched for food, and as surely abandoned when the frost closed it. Manure-heaps were then visited by the distressed birds, until a heavy fall of snow buried these places deep beneath it. All this time the Redwings were becoming poorer in condition, more feeble, and still more tame and confiding. But the frost still continued, and they repaired to the banks of the running streams and brooklets; numbers perished; numbers were caught by hand; and eventually they disappeared from many districts altogether, having most probably joined the vast flocks of their congeners that were incessantly passing over the snow-covered landscape in a direct line southwards. Nevertheless the bushes and hedgerows abounded with berries, the Fieldfares seemed scarcely to suffer from the frost, and were always to be seen feeding upon them. It can be only as a last resource, therefore, that the Redwing becomes a berry feeder, except in the autumn when the luscious fruit of the service-tree is ripe. Its winter food is worms and insects; and where these are to be found the birds will only repair to the bushes and trees when alarmed or in order to roost. The Redwing also feeds on various species of snails. It is a pleasing sight to watch a flock of these birds searching the grass-lands for food. How nimbly they hop amongst the frosted grass, ever in motion, thorough Song-Thrushes in attitude and action, occasionally taking short flights or starting up to look warily round. They are scattered over the entire field, and each is busy searching for its food. If alarmed they fly off in small parties and take refuge in the topmost branches of the nearest trees, and, when the danger is passed, leave their elevated perching-places in the same manner. First one will fly boldly down; others follow, and so on, until the whole flock is again engaged feeding as before. One or two birds sometimes remain behind in the trees near to which the main flock is feeding. These do duty as sentinels, and utter alarm-notes on the approach of danger, at which the birds take wing. Even if fired at, the Redwing will soon return to its favourite feeding-ground.

The rich wild notes of the Redwing are always pleasant to the ear as they are borne hither and thither by the breeze. True, the song may not be so varied as that of the Song-Thrush, nor so rich and powerful as that of the Blackbird, nor yet so wild and free as the "Stormcock's" lay; but it has a rich sweetness about it which justly calls forth the praises of all who have had the pleasure of listening to the strain. Its low warbling song is usually preceded by whistling call-notes, or a few guttural cries, as the bird sits on the topmost spray of a pine tree. Dixon gives an instance of this bird singing in this country; he writes:—"I know not whether the song of this bird is frequently heard in the winter months; but with me it is certainly of the rarest occurrence. I have given the birds my closest attention; but their song has only once greeted my ear. It was one of those sunny days in December, when every thing around almost put me in mind of the coming spring—the Robin chanting his delightful notes far up in the naked branches, and the little Wren pouring forth his jerking song from the undergrowth; a number of Redwings, too, were feeding on the surrounding grass fields, when one of their number flew from the rest and perched on a lowly hawthorn tree some ten yards away and commenced singing. I can only compare its song to a mixture of Song-Thrush and Blackcap melody, the whole being given forth in one long warbling strain, varied by several harsh and guttural notes. Well does the Redwing merit the title of 'Swedish Nightingale,' a title bestowed upon it by the great and illustrious Linnæus; for still more beautiful must be his song when inspired by love, still more charming will its tones appear when given forth amongst the pine-clad hills of his far northern home. He continued singing for a few moments, when an unlucky movement on my part sent him hastily away to the company of his kindred on the adjoining meadows. Redwings in the winter months are ofttimes heard warbling in a subdued tone, and varying their performance by the utterance of low guttural notes. This usually happens at nightfall, when the birds are about to retire to rest, and sit congregated on some tree-top—then you have music sweet to a degree; singly it is a poor performance, but each bird's notes chime in with the rest and make music pleasing to the ear. Linnets and Bramblings will often do the same thing in the winter months, each bird warbling in chorus or giving a variation by uttering low murmuring cries."

The breeding-season of the Redwing commences early in June, fresh eggs being found by the first week of that month, although in high latitudes nests are often found containing newly laid eggs in the middle of July. Though the Redwing does not usually nest in colonies like the Fieldfare, still it seems to prefer the society of its larger and more powerful relation; for wherever a colony of Fieldfares establish themselves, there, almost as surely, a pair of Redwings will build their nest close to them. In districts where trees abound the Redwing seems to show preference for the small firs, where it builds its nest at no great altitude and close to the stem; but occasionally it will build upon the ground at the foot of the tree, instead of in the branches. As is the case with the nests of all Thrushes, it passes through three distinct stages before it is completed. The birds form a loose nest of moss, dry grass, and a few fine twigs intertwined, the better to bind the materials together. This structure is then lined and plastered with mud or clay; and finally a thick lining is made of fine dry grass, and sometimes a few rootlets. It is neatly made, and somewhat resembles the nest of the Ring-Ouzel, though it is smaller and perhaps more firmly put together. The eggs of the Redwing are from four to six in number, most frequently the former, and cannot easily be confounded with the eggs of the other British Thrushes, on account of their smaller size. The streaks or spots generally almost hide the ground-colour, and are evenly distributed over the entire surface. The usual colour is a pale bluish green, thickly marbled over the entire surface with greenish brown. Some specimens have the spots dispersed in irregular streaks and blotches, like miniature Blackbird's eggs; in others the ground-colour is almost clear, except at the large end of the egg, where a zone is formed of confluent brown spots; whilst others are almost clear pea-green devoid of all markings. They vary but little in size or shape, and are never large enough to be mistaken for small specimens of the other eggs of this group of birds, which they resemble in colour. They vary in length from 1·1 to 0·9 inch, and in breadth from 0·8 to 0·7 inch. Song-Thrush's eggs are often found as small; but their peculiar tints prevent the slightest confusion. As is the case with the Song-Thrush, the Redwing exhibits the greatest anxiety when its nest is approached, especially should it contain young birds. Throughout the whole laying- and hatching-season the Redwing continues in full song; his warbling strains are heard constantly and from all parts of his haunts; at all hours his melody floats on the air, as though he were loth to lose a moment of the short sunny Siberian summer.

The upper parts of the Redwing are olive-brown in colour, with a very conspicuous pale eye-stripe extending to the nape. The underparts are pale buff, shading into almost white on the belly, and into rich chestnut on the flanks and under wing-coverts, and are spotted with dark brown. The bill is dark brown, the legs pale, and the irides brown. Young birds are spotted on both upper and underparts, and after the autumn moult have the pale tips to the wing-coverts larger and more clearly defined. The breeding-plumage of the Redwing is lighter than its autumn dress, and the underparts and eye-stripe whiter, and the spots have attained greater definition.

The Redwing has no very near ally.

TURDUS PILARIS.

THE FIELDFARE.

(PLATE 8.)

Turdus pilaris, *Briss. Orn.* ii. p. 214 (1760); *Linn. Syst. Nat.* i. p. 291 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Bechstein, Pallas, Temminck, Naumann, Gray, Bonaparte, Schlegel, Sharpe, Dresser,* &c.
Sylvia pilaris (*Linn.*), *Savi, Orn. Tosc.* i. p. 209 (1827).
Arceuthornis pilaris (*Linn.*), *Kaup, Natürl. Syst.* p. 93 (1829).
Merula pilaris (*Linn.*), *Selby, Brit. Orn.* i. p. 160 (1833).
Planesticus pilaris (*Linn.*), *Jerd. B. Ind.* i. p. 530 (1862).

The Fieldfare, although the colours of its plumage are sober and chaste, like those of most Thrushes, is still a very fine and handsome bird; and its arrival in autumn is looked forward to by observers of birds in the country as the sign of the winter's advent, just as surely as the summer's approach is known to be heralded by the Cuckoo and the Swallow. A regular winter visitant to the British Islands, the Fieldfare is commonly distributed over the cultivated districts, and as far on the uplands as the mountain-farms extend. The arrival of Fieldfares in Scotland is usually noticed first in the eastern counties, as it is quite natural to expect it would be, for their path in autumn is south and south-westwards. A few birds are said to be found on the Orkneys throughout the year, but they do not breed there. On the Hebrides the Fieldfare does not arrive till midwinter, and is only found on the farms and pastures—in the little oases of cultivated land so sparingly scattered amongst the wide-stretching moorland wastes. In Ireland these birds also arrive late, and are found commonly distributed over those districts suitable to their habits and needs—the cultivated tracts. Fieldfares have been said to have bred in the British Islands; but until definite proofs are forthcoming it is not safe to admit the truth of the statement, the birds being very liable to be confounded with Missel-Thrushes by careless observers. The Fieldfare has a somewhat more southerly breeding-range than the Redwing. It breeds in the Arctic circle, extending up to, and occasionally beyond, the limit of forest-growth, and in north-temperate Europe as far south and west as the basin of the Baltic, and throughout Siberia as far east as the watershed of the Yenesay and the Lena. Its occurrence in Iceland is doubtful; but it has been occasionally met with on the Faroes. It winters in Southern Europe, occurring very rarely in the Spanish peninsula, but crossing the Mediterranean to Morocco, Algeria, Egypt, and Nubia. In Asia it winters in Turkestan and Cashmere; and one specimen at least has been obtained at Simla, in the North-west Himalayas.

The Fieldfare's haunts in Britain are varied ones. A thorough wanderer, it is seen almost everywhere; either passing over on its journeyings from place to place, or stationary as long as its food is to be obtained. It prefers the isolated woods and pastures to shrubberies, although in severe weather it is often seen amongst evergreens, in company with the Redwing. These birds also frequent the well-cultivated districts, seeking their food on the tall hedges; and occasionally a few stragglers come quite close to the houses to feed on the hawthorns in the gardens. As long as the weather keeps open, the Fieldfares seem to shun man's presence almost entirely; but the first severe fall of snow, the first sharp frost, brings them "in" in great numbers.

The first visit to the breeding-place of the Fieldfare is an event in the life of an ornithologist never to be forgotten. As you drive along the excellent Norwegian roads in the carioles or light gigs of the country, through the pine-forests or by the side of the cultivated land near the villages, there is little in the bird-life to remind you that you are not in one of the mountainous districts of England. As you approach the Dovrefjeld, however, the ground rises, the pines become smaller, and the hill-sides are sprinkled over with birch trees. Now is the time to look out for the Fieldfare. Presently the long watched-for *tsak, tsak* is heard. You tie your horse to the nearest tree, climb the hill-side whence the sound came, and presently find yourself in a colony of Fieldfares. The birds make a great uproar as you invade their domain, but soon escape beyond gunshot, and their distant *tsak, tsak* is the only sound you can hear. Your natural impulse is to ascend the first tree where you can see a nest, which is almost sure to be placed in the fork of a birch against the trunk and the first large branch. Close by are sure to be many more nests, some built on the flat horizontal branch of a pine; and outlying nests belonging to the colony will be found for some distance all round.

As you go further north the colonies become smaller; and as the limit of forest-growth is approached beyond the Arctic circle, the Fieldfare can scarcely be called a gregarious bird. On the tundra, in the absence of birch trees or larches, it breeds on the ground, choosing a niche under the turf on the edge of a cliff, exactly as the Ring-Ouzel so frequently does. In the valley of the Petchora we did not see the Fieldfare north of lat. 68°; but in the valley of the Yenesay I found a nest in lat. 69°, and saw the birds up to lat. 70½°; in the former locality it arrived at the Arctic circle on the 17th of May, and in the latter on the 8th of June.

The Fieldfare arrives on our shores a little later than the Redwing—in the last week of October, or, perhaps more frequently, in the beginning of November. It is, however, a difficult thing to give the exact date of this bird's appearance; for its wandering mode of life in this country baffles precise observation, and renders a record of the exact date of its arrival almost an impossibility. Like the other members of this group of birds, the Fieldfare migrates for the most part at night, and usually at a considerable height; but Dixon noticed its arrival during the day on the east coast of England. He writes:—"On the low-lying stretch of shore from Skegness to Boston I well remember to have once seen this bird arrive in countless numbers. The season was late autumn, the 28th of October; and the wind was light from the north-west. Throughout the whole day the birds were passing over in flocks, in company with Sky-Larks, Golden Plovers, and a few Redwings; and during the ensuing night, whilst we were out on the mud-flats wild-fowl shooting, their peculiar harsh and startling cries were heard as the great tide of migration continued, unimpeded by darkness, across the gloomy sky above."

When the first heavy fall of snow is lying on the ground, a walk abroad will probably cause you to make the acquaintance of the Fieldfare. There is something about the first heavy fall of snow peculiarly attractive and interesting to the naturalist—in fact to all who take a delight in rural scenes. The whole landscape then bears a strange novel look; it is something fresh; and, what is more, bird-life in the snow is an interesting study. If you stroll out into the woods on a wintery morning, before the first freshness of the snow-storm has passed away, a dreamy quietness seems to be everywhere; animals that betrayed their presence amongst the autumn leaves when the ground was bare, now steal silently away, and every thing seems changed by the sudden transformation of a night. The broad-leafed laurels and the dense yews and hollies bend under their heavy pall of dazzling whiteness. Here and there on the trunks of the forest-trees the snow has lodged in the rifts of the bark, and each branch and twig of the hedgerows is clothed in a fair frost-work of silver filagree, whilst overhead the network of branches comes indistinctly out against the leaden sky above. Animals are now betrayed by their tracks upon the snow. Here a hare has crossed, and, doubling, has passed over the turnips, and found her "seat" in some warm hedgerow. There a weasel has come from the stone-heap, and, in irregular march, has entered the shrubbery. The Blackbird has hopped out onto the snowy lawn, in vain search for a scanty sustenance; and on an old stump a Robin has perched, to warble his morning song. The "spoor" of each is now made plain—the tell-tale snow reveals them all. But if you want to see the Fieldfares you must not look for them on the ground, but in the hawthorn trees. Long before you approach them they probably take wing in a straggling train, scattering the snow in showers from the twigs, and their harsh notes of *tsak, tsik, tsak* ring clearly out on the bracing frosty air. From tree to tree they fly before you, always keeping out of gunshot, or, if thoroughly alarmed, mounting into the air, and, in a widely scattered flock, taking themselves off to a distance, their dark forms appearing large against the sky as they quickly pass away. The flight of the Fieldfare is not particularly rapid, but is straight forward, and with but little undulation, and is performed by a series of quick flapping movements. Sometimes the birds will go through a number of graceful evolutions in the air before alighting on a favourite pasture. When alarmed, they fly to the nearest tree-tops, where they sometimes join in a melodious concert, like Redwings, although just as frequently they will fly straight away. But the Fieldfare is far the oftenest seen in the branches. Like the Missel-Thrush, with whom they often associate, they haunt the berry-bearing trees and shrubs; and as soon as the stock of food is exhausted in one locality they commence their nomad life again, and are off in search of more suitable pastures. At nightfall the Fieldfare is found in the shrubberies and near the evergreen trees and bushes, where it retires to roost. Like the Redwing and the Blackbird, the Fieldfare becomes vociferous at the approach of dusk, and its peculiar chattering cry and low guttural call-notes are heard well into twilight. It has been said that the Fieldfare roosts upon the ground; but this is undoubtedly from necessity, not from choice; for the bird, though, like all other Thrushes, for the most part a ground feeder, has none of the characteristics of ground-birds, as the Larks and Pipits, and where evergreens are at hand it always avails itself of their shelter. Instances are alleged of these birds having been flushed from the stubbles or the pastures at dusk; but this is the Fieldfare's feeding-hour; and if shrubberies be near at hand, it is there they spend the night.

The Fieldfare is less exclusively insectivorous than the Redwing. In winter these birds are sometimes found upon the stubbles and wilder pastures (places the Lark loves to frequent), where they consume the scattered grain, and pick out the seeds of the various grasses. But they also search at times the marshy meadows and pasture-lands for snails, worms, and beetles; and if the frost lasts long and vegetable food is hard to find, they will haunt the banks of the running streams for the sake of the scanty insect-fare they afford. In winter the Fieldfare seems most at home amongst the branches of berry-bearing trees and shrubs. He is then a thorough berry feeder, and all the winter fruits form his fare. He is often seen in the mountain-ash, or in amongst the dense thickets of wild rose and bramble, where the "hips" grow the thickest; but the food he loves best appears to be the berries of the hawthorn. It is a pleasing sight to see a flock of Fieldfares, when the ground lies inches deep in snow, in the dense branches of these trees, obtaining the berries which hang in such tempting clusters from almost every twig. It is difficult to say when these trees look best—in the spring, when they look almost as white as the driven snow, and their delicate foliage shines like emeralds, or in the winter, when their rich red fruit sets off the leafless branches.

Under the trees the berries lie in all directions, for the birds drop or knock off almost as many as they eat; and the stones are ever falling as they are dexterously shelled out by the feeding birds above. The Fieldfare's summer food is insects, worms, caterpillars, and grubs, and on its arrival at its breeding-grounds in high latitudes the fruit of the various moorland berries that are preserved by the snows of winter.

Although the Fieldfare warbles occasionally during its winter sojourn amongst us, still its love-song is only heard amongst the wild scenery of its northern haunts. About the end of April or the first week in May the Fieldfare quits British shores for the north; and upon its arrival its love-song commences. This bird is not a free singer at all; and his song is for the most part confined to the pairing-season. It is often commenced when the bird is on the wing—a wild desultory warble, which he often supplements on his perch by notes reminding one of the peculiar chatter of the Starling. From all parts of the forest the birds are heard to sing; and their wild carols break the stillness of the daily lessening arctic twilight. By many persons the Fieldfare is thought to be a songless bird; others speak but poorly of his musical attainments. But the former have evidently missed the season of the bird's melody; and the others have possibly been too much accustomed to more ambitious songsters to do justice to his simple strains. The Fieldfare's love-song is a pleasant addition to the thousands of songsters that make the Arctic summer so gay and lively. The call or alarm-note of the Fieldfare is a sharp chattering cry—a kind of laughing cackle—several times repeated, and uttered most frequently during the breeding-season; and in the winter it is often heard to utter a low guttural warble, usually at roosting-time.

The Fieldfare builds its nest in the branches of the birch, the alder, or the pine at various elevations from the ground. Sometimes, though rarely, it is placed in outhouses, in situations similar to those which our own Blackbird would choose, or in heaps of rubbish or low bushes only a foot or so from the earth. Nesting-operations usually commence about the third week in May; and eggs may be obtained from that date up to the first week in July. This bird is very irregular in breeding. You may not unfrequently take young birds and newly laid eggs from the same colony. The nest is very similar to the Blackbird's or the Ring-Ouzel's in construction and materials. The outside is made of coarse dry grass, with sometimes a few birch-twigs or a little moss interwoven, then plastered with mud, and finally lined with a thick bed of fine grass. The eggs are from four to six in number, and, in rare instances, as many as seven or as few as three. None of our British Thrushes' eggs vary so widely as do the eggs of the Fieldfare. The average type of egg is bluish green in ground-colour, thickly marbled, speckled, and blotched over the entire surface with rich reddish brown, the spots being the densest on the larger end, in fact resembling a very handsome Blackbird's egg. Some varieties are pale greenish, with the spots and streaks distributed equally over the whole surface and very pale and indistinct, like the duller eggs of the Blackbird; in others the egg is paler in ground-colour, but thickly and boldly blotched with reddish brown, like typical eggs of the Ring-Ouzel; while yet, again, specimens are more rarely met with almost as blue as Song-Thrush's, and with but one or two streaks of liver-brown on the larger end. They vary in length from 1·35 to 1·02 inch, and in breadth from ·9 to ·7 inch. When their nests are approached the birds often become very noisy and behave like Missel-Thrushes, flying round the head of the intruder, and endeavouring to drive him away from their haunt. This conduct is more noticeable should the nests contain young birds; but their constitutional shyness soon prevails over their parental instincts, and before you have climbed your second tree, all trace of the Fieldfares has vanished, except the sound of their *tsak, tsak* in the distance.

When the young quit the nest they still keep in their parents' company, wandering about the edges of the woods and open localities, appearing in the morning and evening on their feeding-grounds, retiring to the thickets at noon and at nightfall. Their food now is principally insects; but in July, when the wild strawberries are ripe, these constitute their principal fare. This regular mode of life continues throughout this month until the latter end, when the moulting-season commences. By the end of August the moult is over, and the birds begin to flock, and then their regular nomad life commences. They frequent all the large woods, and draw near to those districts where the rowan tree and the wild rose abound, on the berries of which they live for the most part, until the autumn sends them southwards to their winter haunts.

The upper parts of the Fieldfare are slate-grey, except the wings and tail, which are dark brown, and the head, which is spotted with black. The centre of the back is dark chestnut-brown. The throat and breast are rich brown, and the centre of the belly is pure white. With the exception of the centre of the belly, the whole underparts are spotted and marked with rich brown. The bill is yellow, feet and legs black, and irides very dark brown. The female resembles the male. Upon its arrival in this country the bird has very broad margins to the feathers of the lower parts, giving it a pale appearance; in fact they are newly-moulted feathers; but after the winter has passed these edges are cast and the spots are more clearly defined, leaving the bird in its nuptial dress. Like the young of all other Thrushes, the Fieldfare is spotted on the back when it leaves the nest, but moults again with its parents, before it migrates, almost int fully adult plumage.

The Fieldfare has no very near ally.

Genus MERULA.

The genus *Merula*, though foreshadowed by Brisson, was only half adopted by Gerini, and dates a doubtful pedigree from 1816, when Leach, in his 'Systematic Catalogue of the Mammals and Birds in the British Museum,' adopted the præ-Linnæan name of *Merula nigra* for the Blackbird. As this species is also the *Turdus merula* of Brisson and Linnæus, there can be no doubt that it is the type of the genus *Merula*.

The Ouzels differ from the Ground-Thrushes in not possessing the peculiar wing-pattern of those birds, and from the Thrushes in having the adult male either quite different from the female, or without any streaks on the throat.

The genus *Merula* contains about fifty species. The Neotropical and Oriental Regions contain about fifteen species each, and the Palæarctic and Australian Regions about ten each, whilst in the Nearctic and Æthiopian Regions the genus is unrepresented. Only two species breed in Europe (both of them in England); but several of the Siberian Ouzels occasionally wander westwards, and one of them at least has visited our shores.

The Ouzels are most of them strictly arboreal birds in their habits, frequenting woods, groves, shrubberies, and well-timbered lands. They are somewhat shy and retiring birds, seldom straying far from cover, and are more or less sociable among themselves. Amongst this group of birds we find the power of song most highly developed, no bird exceeding the typical Blackbird in the rich compass of its notes. These birds all build open well-constructed nests, usually made of dry grasses, twigs, moss, and mud, placing them in bushes, sometimes on the ground, and more rarely in the higher branches. Their eggs are from four to seven in number, bluish green of various shades in ground-colour, more or less richly marked with reddish brown. Their food consists of worms, grubs, snails, insects, fruits, and berries.

MERULA MERULA.

THE BLACKBIRD.

(Plate 8.)

Turdus merula, *Briss. Orn.* ii. p. 227 (1760); *Linn. Syst. Nat.* i. p. 295 (1766); **et auctorum plurimorum**—*Latham, Scopoli, Gmelin, Bechstein, Naumann, Temminck, Vieillot, Gray, Bonaparte, Newton, Sharpe, Dresser, &c.*
Merula vulgaris, *Gerini, Orn. Meth. Dig.* iii. p. 46, pl. ccxcix. (1767); *Selby, Brit. Orn.* i. p. 167 (1833).
Merula nigra, *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 20 (1816).
Merula merula (*Linn.*), *Boie, Isis*, 1822, p. 552.
Sylvia merula (*Linn.*), *Savi, Orn. Tosc.* i. p. 205 (1827).
Turdus menegazzianus, *Perini, Uccelli Veronesi*, p. 56 (1858).
Turdus dactylopterus, *Bp. fide Gray, Hand-l. B.* i. p. 255. no. 3714 (1869).

The Blackbird is perhaps the most elegant in appearance of all our British Thrushes, and the most graceful and sprightly in its motions. Its highly developed vocal powers and its familiarity with man justly win for it universal admiration; and its neat plump form and rich song are associated most closely with all rural scenes.

Throughout Great Britain, wherever trees abound, the Blackbird is very commonly met with, and occasionally frequents the wild mountain-wastes, but only near the upland farms or in gardens or orchards on the border-lands of the moor. On the comparatively desolate Hebrides the Blackbird appears but irregularly; on some of the islands it is a somewhat rare resident, whilst on others it is a winter visitant alone. In Skye it occurs in fair numbers, but is not nearly so common as the Song-Thrush. In all the well-wooded parts of the island you may hear his mellow song—in those cheerful oases of sylvan beauty that do so much to relieve the wildness of moorland wastes. On the isolated rock of Ailsa Craig one or two pairs of Blackbirds live; and the Bass Rock in the Forth contains a pair, so strangely out of place, where not a single bush or tree exists. As cultivation advances and the wastes are gradually reclaimed, the Blackbird increases his range, encroaching upon that of the Ring-Ouzel. In Britain cultivation and the Blackbird are almost inseparable; and as improvement extends the birds follow in its wake, spread themselves, and take possession of haunts once sacred to the birds of the wild alone. It is only in recent times that the Blackbird has extended its range to the remotest of the Hebrides; for, according to Macgillivray, the bird in his time did not breed upon them; now it is a resident bird even as far north as Stornoway in Lewis, owing undoubtedly to the improvement and cultivation of late years. In the Orkneys it breeds; but the Shetland

Isles are only visited in winter, most probably by storm-driven birds from Norway, carried out of the general line of migration. It has been occasionally found on the Faroe Islands; and in Iceland its occurrence rests on two somewhat doubtful instances, one in 1823, the other in March 1860. It is a resident in the Azores. The Blackbird is a more or less constant resident in every country in Europe and North Africa; but its range does not extend very far north. In Norway, in consequence of the milder climate caused by the Gulf-stream, it breeds up to the Arctic circle; but in Russia it does not appear to range further north or further east than the valley of the Volga. In Asia it is found in Asia Minor, Palestine, Persia, Turkestan, Afghanistan, and Cashmere. In the three last-mentioned countries it attains a somewhat larger size, which has given rise to the name of *Merula maxima* having been applied to the Eastern form. In this race (which, according to the excellent American system of nomenclature which ten years hence will also be used in this country, ought to be called *Merula merula*, var. *maxima*) the length of wing varies from 6·0 to 5·2 inch, whilst European birds only measure from 5·1 to 4·6 inch. The Blackbird is a partial migrant. In the extreme north of its range it is very rare in winter, whilst in the southern portion it is especially abundant at that season of the year.

The Blackbird is shy and wary; and his haunts are chosen in situations well adapted to afford him concealment and seclusion. He inhabits the woodlands, plantations, dense hedgerows, gardens, and orchards; but perhaps the places he favours most are the shrubberies and thickets of evergreens. Here, where the laurels, the yews, and the hollies spread their glossy branches, and the ivy festoons almost every forest-tree, the Blackbird is found in greatest abundance, more especially so should lawns or pasture-fields adjoin them. The Blackbird also loves the fences in the fields in summer, where the vegetation is thick and close, and more particularly so if small streams of water wander beside them. The briars and the brambles growing most luxuriantly over the hazel-bushes, with here and there a guelder rose or blackthorn bush, afford a friendly shelter; and the banks clothed densely with herbage, wild hyacinths, primroses, anemones, and fern-tufts afford a fitting site for his nest. But in winter, when these situations lose their verdure, the Blackbird quits them for the seclusion and warmth of the evergreens in the shrubberies and gardens. In spare numbers the Blackbird also frequents the upland districts, on those broken tracts of country which occur between the cultivated ground and the moors. Here he frequents the dense thickets of thorn and bramble by the side of the little streams, or, further in the open, the tall holly bushes and gorse clumps occasionally intermingled with a birch or mountain-ash. Wherever the upland farmhouses nestle amongst clumps of trees and are surrounded with a partially neglected garden or orchard, the Blackbird will also be found. In fact he follows man to the wilds as long as sufficient vegetation exists to afford him the seclusion which he loves.

The Blackbird is especially fond of swampy places and the neighbourhood of water. Wherever streams with well-wooded banks occur, there just as surely Blackbirds will be found; and in the little swampy corners of woods and shrubberies they congregate, sometimes half a dozen birds taking wing together at your approach. Yet the Blackbird is not gregarious; and its presence here in company with its kindred is explained by a common purpose, the search for the food the swamps contain; and each bird flits off solitary as it came.

Most birds become more or less vociferous at the approach of night, and the Blackbird particularly so. As you wander through the shrubberies in the evening, you will often hear a rustling noise amongst the withered leaves under the shrubs and plants. A rustle and then a pause, another more hasty movement, and at last a Blackbird dashes rapidly out, and, uttering his loud harsh cry of alarm, flits off in unsteady flight and hastily disappears again in the nearest cover. As the darkness deepens you have good opportunity of watching their actions when retiring to rest. Conceal yourself under the spreading branches of a dark gloomy yew tree and wait patiently; you will hear their loud cries in all directions, and catch occasional glimpses of their dark forms flitting hither and thither in the gloom: *pink-pink-pink, tac-tac-tac,* is heard on every side. Now a bird comes fluttering into the bush under which you are concealed, and his notes startle you by their nearness. A short distance away another answers: another and another in different directions also swell the noisy clamour; and you hear on every side their fluttering wings amongst the evergreens around you. As night comes on and all objects lose outline and distinctness, the cries cease and the birds settle down to rest. A solitary bird will, perhaps, dash past just fresh from the pasture-lands outside; or a frightened bird will utter his alarm-note as he shifts his quarters; yet all else is now silent, save indeed the few last evening notes of the Robin, or, perhaps, the purr of the Goatsucker.

The Blackbird is with difficulty flushed. It is a skulking bird, and prefers to hop quickly under the hedgerows and brushwood rather than take wing, its motions partaking more of those of a mouse or a rat than of a bird. When compelled to take wing, its flight for a short distance is remarkably unsteady. Turning and twisting from side to side, it dashes quickly away, and, as a rule, just as suddenly and unexpectedly alights in the nearest cover. Across an open place, however, the Blackbird flies quite steadily, and his motion through the air is rapid. Rarely, indeed, does the bird fly at any great height; and should he be compelled to fly far, he seems to prefer skulking along the hedgerows or close to the ground from bush to bush rather than expose himself to view. In the pine-forests at Arcachon, where both the Blackbird and the Song-Thrush winter in some numbers, it was especially noticeable that, whilst the latter were generally seen in the loftiest pines, the former were exclusively found in the underwood, which there consists of furze, broom, and heath, the latter frequently attaining a height of from six to ten feet. As a rule, Blackbirds are extremely sedentary birds, rarely make excursions to any distance, and for weeks, nay, whole seasons, regularly frequent one locality. The Blackbird's flights are almost entirely restricted to those taken from or to its feeding-grounds, should they not be immediately adjoining its haunts. From the shrubberies to the gardens it regularly passes, especially in early morning and in the dusk of the evening; yet the bird is apparently always in a hurry, and anxious to reach the shelter and seclusion of its haunt as soon as possible.

There is no reason to think that the Blackbird is migratory in the British Islands. Many birds shift their quarters, either from the colder districts and those parts of the uplands which they haunt in summer, or they quit the open fields when the hedgerows are rendered bare by the wintry blasts; but the bird is not a migrant in the accepted meaning of the word. In severe winters, however, the numbers of our resident birds are perceptibly increased by birds from the continent driven south by stress of weather. On Heligoland, that interesting little island, of all other places the best for observing the annual movements of the bird world, the Blackbird is regularly obtained on spring and autumn migration, clearly demonstrating the fact that the species is, at all events, a migratory one in the northern portions of its range.

Morning and evening are the times when the Blackbird usually seeks his food; and then you can study his graceful attitudes and sprightly bearing to perfection. In spring and summer it is, for the most part, obtained from the grass-lands—the lawns and pastures near his haunts. At the morning's dawn, or when the sun is well down in the west, you can observe them with ease. One by one you may see them fly rapidly out of the dense shrubbery or wood and alight amongst the grass. They remain motionless for a few seconds after alighting, with legs at a graceful angle, neck arched, head turned slightly aside, as if they were listening intently, and tail almost at right angles to the body; for these birds, like Ring-Ouzels and Magpies, always elevate their tails upon alighting. They crouch low amongst the herbage, thus presenting an appearance the very model of easy though wary gracefulness and beauty. Few birds are more shy while feeding than the Blackbird; and the instant he is alarmed, he either crouches lower to the ground or retires into the fastnesses whence he came. The Blackbird most frequents the pastures in the morning and at evening—when the small white snails occur in largest numbers, and the earthworms come nearer to the surface of the ground or crawl out completely. An animating and interesting sight, indeed, it is to watch him seek his meal. As soon as he alights he pauses a moment, then hops quickly forward and begins to dig for a worm, or snatches a snail from the grass-stem. Then another pause with head erect, then a few more rapid hops forward, and again he renews the digging motions, drawing the worms from their hiding places, and, if they be too large to swallow whole, breaking them in pieces. Now he is tugging away at some tenacious worm, now exploring the heaps of manure in search of insects, every now and then pausing in his labours to look warily around. In this manner the birds will advance a hundred yards or more from their cover; but should any one of them utter its alarm-notes, the whole party seek shelter, leaving the pasture in a straggling train, the boldest birds sometimes tarrying until you approach them within gunshot. But all the Blackbird's food is not obtained from the pastures. Lurking amongst the hedgerows are numerous snails inhabiting prettily-marked shells; these the Blackbird breaks by dashing them against a stone or even the hard ground. Insects and grubs are also eaten, and in autumn the berries of the mountain-ash, wild rose, and elder, and also wild fruits, as raspberry, blackberry, and sloe. The Blackbird is also, to some extent, a graminivorous bird, and will feed on grain and various seeds. The bird's love for fruit also makes him but a poor favourite with the gardener, who is ever on the alert to kill him for the cherries, currants, gooseberries, and peas that he pilfers in the season. But the bird's thefts in fruit-time are amply repaid by the amount of undoubted good he does at other times of the year in ridding the garden and the orchard of many of their unwelcome pests. A little watching in the fruit-season is all that is necessary. His good deeds amply repay his little pilferings; and his sprightly form and tuneful song should be far more highly valued than a handful of fruit.

In autumn the Blackbird is often found in the turnip-fields, seeking the snails and worms which abound so plentifully in the damp loose soil under the broad leaves. In such numbers do the birds congregate that it is no uncommon thing to flush a dozen of them on an acre of turnips. Here they are flushed with difficulty, always preferring to run under the leaves than to take wing, unless absolutely compelled to do so. In winter the Blackbird's table is the hawthorn, whose berries form its favourite food. At this season of the year it also eats the berries of the misseltoe and the ivy; yet always, when the frost is absent, it frequents the grass-lands, manure-heaps, and little watercourses in search of the various insects on or near them.

The song of the Blackbird is first heard in the latter part of February, and continues with undiminished power until the end of May, when his notes are on the wane throughout June; and in July his mellow pipe is hushed during the autumnal moult until the advent of the following spring.

Though rich and full in tone it possesses little variety; but still the Blackbird's melody is one of the finest of all known birds'; for what it lacks in variation it makes up in compass and richness of tone. Early morning, about sunrise, and after five o'clock in the evening, in the latter part of April, are perhaps the times the Blackbird's powers of song are heard to best advantage. On the topmost twig of some lofty oak tree, or hid away amongst the foliage of the lower branches, he will sit in the dusk of early morning and warble his wild flute-like song, which floats gently on the still cool air, as he greets the now glowing eastern sky, and later the rising sun. Then again in the evening he sings as loud and full as in the morning; and you may note that his melody is particularly charming during a passing shower or thunder-storm, even in the middle of the day. Although the Blackbird warbles his delightful strains at all hours of the day, still it is in the morning and evening that the lover of nature can pause and listen to the bird's wild strains in fullest enjoyment; for he seems to strive his best to herald the approaching day and sing its requiem in his choicest tones. The Blackbird's alarm-notes have been previously noticed, and resemble most closely those of the Ring-Ouzel. The call-note of the male bird in the breeding-season resembles the call-note of the Robin—a kind of wild piping cry, indescribably plaintive and beautiful. The female bird is not near so noisy as her mate. She is perhaps still more skulking in her habits, and in the breeding-season especially is rarely heard to utter a sound.

Blackbirds are extremely pugnacious creatures during the mating-season. A little before the period of the vernal equinox it is no uncommon thing to see male Blackbirds fighting with perfect fury, and chasing each other rapidly through the branches until one comes off victorious and the other slinks silently away. Most birds in the mating-season are more or less pugnacious, although peaceable enough at other times; but the Blackbird may be often seen displaying animosity towards its own species at all seasons of the year. The Blackbird pairs early in the season; but its nest is not found quite so early as that of the Song-Thrush or the Stormcock.

Its chief breeding-haunts are the woods, the shrubberies, pleasure-grounds, gardens, and hedgerows of the highly cultivated districts. The site for the nest is a varied one, embracing at times very singular situations. Preference, however, is given to evergreens. Its nest is placed far up the ivy-covered branches of the tallest trees, or amongst the ground-ivy, in the gloomy yew-trees, snugly buried under the broad-leaved laurels, hid from view in the holly's impenetrable and glossy foliage, and, more rarely, in the dark and frowning branches of the cedars and the pines. A favourite situation for a Blackbird's nest is amongst the ivy growing on walls, especially where a few stray brambles hang over to support it, the materials of the nest being artfully interwoven with them. It is also found pretty frequently on the ground in the banks of wooded ravines, amongst fern and hyacinths, and also in hedges. In all these varied situations, however, the materials of the nest are the same; and often little or no attempt is made to conceal it. Curious sites, indeed, are sometimes chosen. The Blackbird has been known to make its nest on a stone projecting from a wall, with no other support whatever; in another instance under the eaves of a shed; whilst a third was placed amongst the roots of a large tree, far under a bank, in just such a situation as a Wren would select for a nesting-site. The nest passes through three stages before it is completed. It is composed, first, of coarse grasses, amongst which a few twigs are sometimes woven, a little moss, and dry leaves. This somewhat loosely built structure is lined with mud or clay, when it is a difficult matter to distinguish it from an unfinished nest of the Song-Thrush. This mud-formed cavity is finally lined very thickly with finer grasses, admirably arranged, and forming a smooth bed for the eggs. When completed and dry, the nest of the Blackbird is very firm and compact—a proof of which may be seen in the number of their nests which remain intact through the storms of winter, forming refuges and larders for the field-mice. In form the Blackbird's nest is somewhat shallow, and is usually a large, bulky structure. The eggs of the Blackbird are from four to six in number, although this is in some few cases exceeded, for nests have been known to contain eight eggs. They differ considerably in size, form, and colour: some specimens are exceptionally large, others small; some are quite pear-shaped, others almost round. The usual colour is a bright bluish green, spotted, streaked, clouded, and blotched with rich reddish brown and various tints of purple. Some specimens have most of the spots and streaks round the large end of the egg in a zone or band; others are finely blotched; whilst some specimens are so highly marked as to hide all trace of the ground-colour. Varieties of the Blackbird's eggs are occasionally met with very similar to the eggs of the Starling, pure and spotless. Apropos of these light-coloured eggs, Dixon writes that "in Derbyshire, for three successive years, a pair of Blackbirds built their nest in a spreading laurel, in exactly the same situation yearly; and each season their eggs were remarkable for being pale blue and spotless. This pair of birds produced during this period some thirty eggs, all similar in colour, thus affording considerable proof that the colour of birds' eggs is to a great extent hereditary. I have known similar instances with the Starling, the Titmouse, and the Robin, where for several seasons the eggs have possessed certain peculiar characters. The eggs vary from 1·35 to 1 inch in length, and in breadth from ·9 to ·79 inch. The Blackbird usually rears two, and sometimes even three broods in a year, nests containing newly laid eggs not unfrequently being found in July and early in August. The young birds are fed on worms, snails, grubs, and insects; and the parent bird tends them but a short time after they quit the nest. When visiting the nest with food, both male and female birds are extremely cautious; and should they obtain a glimpse of any intruder, they will sometimes fly restlessly about for hours with the food in their beaks rather than betray the site of the nest. Both the male and female bird assist in hatching the eggs and rearing the young; but the female is by far the most frequently found upon the nest; and she conveys the greater part of the food to the young as well. In the rearing-season the male Blackbird sometimes warbles as he flies through the air to and from the nest.

As a cage-bird the Blackbird is held in high esteem. Poor fellow! he bears captivity well; and his tuneful melody is often heard in the densest thoroughfares of the busy metropolis as the little jet-black chorister warbles from his prison-home, in seemingly just as joyous a strain as his wild congeners, gladdening the hearts of all who hear it, and doubtless bringing to the mind of many a tired wayfarer rural scenes far away, and brighter and happier times now long past and gone.

Our Blackbird's nearest relation is the South-Chinese Ouzel, *Merula mandarina*, which has the upper parts very dark brown, never quite black. There are several other species of *Merula* in which the male is quite black —one in Central America, three or four in South America, and one on the Samoa Islands in the Pacific Ocean; but these may be distinguished at a glance from their Palæarctic relation by their yellow legs.

As its name implies, the Blackbird is entirely black, with an orange bill, a ring of orange round the eye, black legs, and hazel irides. Shakespeare dispenses with long pages of description, and gives his diagnosis in a single sentence:—

"The Ouzel-cock, so black of hue,
With orange-tawny bill."
Midsummer Night's Dream, Act iii. sc. 1.

The female bird differs greatly from the male, is brown with a dark brown bill, and is more or less rufous on the throat and breast, which are streaked with dusky black. The young birds in nestling plumage have most of the feathers with pale shaft-streaks, dark tips to those of the upper parts, and the under plumage with dark bars. After the first moult the young birds resemble their parents; but the males have the bill black, and the females are suffused on the throat and breast with vinous red. It is worthy of remark that both immature birds and old males and females have a few fine hairs on the hind neck, growing quite independent of the feathers; so, too, have its near ally *M. mandarina* and many other Ouzels.

MERULA TORQUATA.

THE RING-OUZEL.

(PLATE 8.)

Turdus merula torquata, *Briss. Orn.* ii. p. 235 (1760).
Turdus torquatus, *Linn. Syst. Nat.* i. p. 296 (1766); **et auctorum plurimorum**—
Gmelin, Latham, Pallas, Temminck, Gray, Newton, Sharpe, Dresser, (Gould), &c.
Merula torquata (*Linn.*), *Boie, Isis*, 1822, p. 552.
Sylvia torquata (*Linn.*), *Savi, Orn. Tosc.* i. p. 206 (1827).
Copsichus torquatus (*Linn.*), *Kaup, Natürl. Syst.* p. 157 (1829).
Thoracocincla torquata (*Linn.*), *Reich. Nat. Syst.* pl. xliii. (1850).

The range of the Ring-Ouzel in Great Britain is pretty much restricted to the moorland wastes and northern mountains. In the south of England the bird is seen on spring and autumn migration, and breeds in one or two localities, notably on Dartmoor. It has also been known to breed in Cornwall, Kent, Suffolk, Norfolk, Warwick, and Leicester, and in a few of the Welsh mountain-districts. From Derbyshire northwards the Ring-Ouzel is a common bird on the moors, extending its range to the Scottish Highlands, but is only seen on autumn migration in the Orkney and Shetland Islands. Curiously enough, on the Outer Hebrides the bird is unknown; and even on the innermost western isles it is a rare bird, although the ground seems eminently suitable to it. Throughout Ireland in all suitable localities it is commonly found. Upon the European continent the Ring-Ouzel is a summer visitant to the bare rocky portions of the pine-districts; yet in most of the mountainous districts of the south which the birds pass on migration numbers remain to breed. But it does not appear to range further east than the Ural Mountains. Its winter-quarters are the lowlands and alpine districts of South Europe, North Africa, Asia Minor, and Persia.

The Ring-Ouzel is an especial favourite with most ornithologists—not so much from its rarity as from the localness of its distribution, and not so much from any thing specially interesting in its appearance or habits as from the romantic scenery of its breeding-grounds. It may be said to be a mountain form of the Blackbird. The lowland species seldom ascends the hills more than a thousand feet, where it is replaced by the Ring-Ouzel. In the Caucasus the Ring-Ouzel frequents the rhododendron region, seven thousand feet above the level of the sea; and when I was toiling up the steep ascent of the North Cape in Norway, in lat. 71¼°, I amused myself with watching the Ring-Ouzels on the rocks. As it is not recorded from Archangel, and Harvie-Brown and I did not meet with it in the valley of the Petchora, we may almost assume that rocks are indispensable to the Ring-Ouzel. It appears again more to the east amongst the rocks of the Ural Mountains; but its further range eastwards appears to be barred by the rockless steppes of West Siberia. When the Redwing and the Fieldfare are on the point of departure from our shores for their northern breeding-haunts, the Ring-Ouzel's bold and defiant cries are first heard, and his song, carried hither and thither over the moorlands by the breeze, sounds wild and sweet as, tempered by distance, it greets our ear as the bird sits wary and watchful on the highest pinnacle of some projecting rock. Impelled by resistless impulse, this handsome Ouzel has again sought the solitudes of the moors for the purpose of rearing its young, arriving towards the end of March or early in April.

The Ring-Ouzel is a somewhat remarkable bird; for although not the *only* migratory British Thrush, still it is the only Thrush that visits our country for the purpose of rearing its young; and, in addition to this, it is the only Thrush that principally confines itself to the upland wilds. A true bird of the wilderness, it prefers the deepest solitudes that our land affords. Truly, indeed, the Ring-Ouzel's home is a wild and romantic one. You will first make his acquaintance where the heath begins, where the silver birch trees are scattered amongst the rock-fragments, and the gorse bushes and stunted thorns and bracken are the last signs of more lowland vegetation. The scenery gets wilder, but still the bird is your companion; he flits from rock to rock before you, or, by making long detours, returns to the place whence you flushed him, uttering his loud, harsh, and discordant call-notes. The hills of Derbyshire are one of his favourite haunts: almost on the very summit of Kinder Scout, the highest peak of the High Peak, nearly two thousand feet above the sea-level, the Ring-Ouzels rear their young. The plateau on the summit of this wild mountain, the view from which is one of the finest in the north of England, is intersected by deep watercourses, the principal ones worn down to the solid rock, but the greater part of them mere trenches in the peat alone, too wide to jump across, and destitute of the least trace of vegetation. The innumerable islands which lie in this network of "groughs," as they are locally called, are covered with heath, bilberry, crowberry, clusterberry, and, in some places, with cranberry, bearberry, and cloudberry. The latter plant is the great feature of the wild Siberian tundras, the "maroshka" of the Russians, and the "molteberre" of the Norwegians. But the botanist is not the only one who finds an interest here. Bird-life is on every side; and the handsome "Torr-Ouzel," as the peasant lads and herdsmen call him, lives in company with the Red Grouse, the Curlew, the Peewit, and the Golden Plover, which also breed in this wild upland solitude.

The Ring-Ouzel is a shy and wary bird, rarely allowing the observer to approach it within gunshot, except when its nest is in danger. The bird flits before you, ever at a respectable distance, and, if repeatedly disturbed, will take itself off with strong rapid flight to some place of safety. There is much in the Ring-Ouzel's habits and movements in common with those of the Blackbird,—its garrulousness at nightfall, its method of searching for food, its peculiar elevation of the tail upon alighting, and its shy, restless, and vigilant disposition, all being characteristic of that coal-black chorister. Directly after its arrival on our shores the Ring-Ouzel is sometimes observed in large flocks, not unfrequently consisting of several hundred individuals. They remain gregarious for a few days, frequenting the marshes and swamps before they pair and distribute themselves over the moors. At this season the birds are more vigilant than ever, and, if disturbed, rise like Fieldfares and take themselves off to safer and more secluded quarters.

The food of the Ring-Ouzel is varied, and is both animal and vegetable. At dawn, or just as the evening's mist is stealing up the mountains, you will not unfrequently see him on the wild pasture-lands of the upland farms, or on the stretches of marshy grass-land, studded with rush-tufts, on the moor. Here, in a precisely similar manner to the Blackbird, the Ring-Ouzel seeks his food, which consists of the worms and small slugs abounding in the earth and on the blades of grass. Every few moments he hops forward, looks warily around, and then commences digging for his prey, occasionally pausing in his labours with head erect, as if fearful of discovery so far from the friendly cover of the heath. On the moor itself he obtains much of his sustenance. The droppings from the cattle and the sheep that pasture there abound with small beetles and insects, which the bird searches for and captures, just as the Blackbird does on the lowland pastures. Then, too, amongst the wild luxuriant growth of vegetation on the moor, numerous shells are found; and the snails that tenant them are eaten, the bird breaking the shells, just like the Thrush or Blackbird, on some convenient stone or rock. The Ring-Ouzel is also passionately fond of fruits and berries; indeed, from July to the time of his departure for the south, these form his favourite fare. The wild berries of the moorland, the billberry, cranberry, cluster-berry, and other fruits, are eaten, as are also the berries of the mountain-ash. The gardens near the Ring-Ouzel's haunts are also visited and plundered, all the smaller fruits being eaten, and also the plums and cherries. Ivy-berries, elder-berries, and the luscious fruit of the bramble are also part of the bird's autumn food; and the vineyards of France and Spain are visited on the bird's passage south for the sake of the dainty fare they afford.

Soon after their arrival at their breeding-grounds the male Ring-Ouzels are heard singing in all directions, and, by exercising a little caution, you may get within a few yards of the bird and thus observe him closely. Sometimes he is perched on the rocky walls that there do duty for hedges;

sometimes he is sitting on a tuft of heather, or on a gorse bush, or on the branches of some silver birch or mountain-ash, yet, perhaps, most frequently of all on the summit of a grey boulder. Monotonous as is the song of the Ring-Ouzel, still its loud tones and the bold bearing of the bird itself fully harmonize with the wild surroundings. You may often see him perched on some storm-riven tree growing out of the grey rocks, where, with his white breast glistening in the sun, he sits motionless and pours forth his wild notes. His song resembles in part that of the Starling, the Blackbird, and the Song-Thrush. The bird, after several piping notes, utters a few harsh tones, as if in mockery of his own performance, probably a minute passing between each snatch of song. If you alarm him, his wild notes cease at once, and, with his wild cries echoing in the rocks around, he either drops down into the heath or flies away to a more secluded resting-place. The claims of the Ring-Ouzel to the rank of a first-rate songster may be disputed, and his musical powers be unfavourably compared with those of the Song-Thrush or the Blackbird; still there is a wild freedom in them which gives them a peculiar charm, and the wild nature of the surrounding landscape is also much enhanced in beauty by a song as clear and melodious in tone as the scenery around is grand and impressive. If it be the surroundings alone that gain the Ring-Ouzel his musical reputation, then most surely it is the shaded dells and wooded copses that bring the Song-Thrush's music and the Blackbird's trills into such high repute.

The call-notes of the Ring-Ouzel are somewhat varied. Sometimes they are as low and musical as a Wheatear's (call-notes to each other, in fact); sometimes the note is a piping cry, apparently confined to the male bird alone, with which he speaks to his mate. But the alarm-note is a sharp *tac-tac-tac, tac-tac-tac,* repeated more frequently and loudly should you happen to be in the neighbourhood of the nest.

The Ring-Ouzel very probably pairs annually, soon after its arrival at its breeding-grounds; and a week or so later the birds are engaged in the duties of the season—towards the end of April; yet eggs can be obtained throughout the whole of May and even till July, although these may be the eggs of birds whose first clutch was destroyed. The nest of the Ring-Ouzel is generally placed on the ground, in a hollow in the midst of the ling, which effectually conceals it. Occasionally it will be found in a bush or stunted tree, but never at any great elevation. In the heather on an embankment, where the soil has given way and left an abrupt edge, is a favourite place. Wherever there is a steep bank covered with high heath, whether it be sloping down to a stream or an old road, you may almost safely calculate on finding a nest every few hundred yards or so, always placed in the shelter of the highest heather (a foot high or more). Sometimes holes in the rock itself are chosen, where a few plants of heath have gained a footing and almost completely shelter the nest from view. Like the nests of all the Thrushes, that of the Ring-Ouzel undergoes three distinct stages before completion, and is always well and compactly constructed. It is made of coarse grass, with perhaps a few twigs of heather to bind the materials together; and a few withered leaves are sometimes added. This grass-formed nest is then lined with mud or clay from the neighbouring bogs or stream-banks. At this stage the nest is remarkably deep; but the thick lining of fine grass which is now added brings the nest to more even proportions. When examining the nest of this bird, its close resemblance to that of the Blackbird will be noticed. Indeed it would be almost impossible to discriminate between them, were we not aware that the Blackbird does not haunt the wild open moor. In the districts where the habitats of these two birds adjoin (the boundary of cultivation and the wild), nothing but a sight of the parent birds can make identification sure.

The Ring-Ouzel lays four or five finely-marked eggs, bluish green in ground-colour, boldly and richly blotched with reddish brown, and sometimes streaked with dark brown. One variety is very elongated and very pale in ground-colour, the markings being represented by small specks, with a few splashes on the larger end. A second is almost round, intense bluish green in ground-colour, boldly yet sparingly blotched with surface-markings of purplish brown and pale dashes of purple. A third is brownish green in ground-colour, blotched, clouded, and spotted with pale reddish brown and light dashes of purple; while a fourth is similar in ground-colour, but has the brown markings chiefly on the larger end of the egg, where they form a broad zone, and is also streaked with dark wavy lines of brown. So closely do the eggs of this bird resemble those of the Blackbird and the Fieldfare, that, were a series of the eggs of these three birds mixed promiscuously, it would be absolutely impossible to separate all of them correctly. Nevertheless, on an average, the Ring-Ouzel's eggs have the ground-colour clearer, and are more boldly and richly marked, than those of the Blackbird. They vary in length from 1·35 to 1·08 inch, and in breadth from 0·9 to 0·78 inch.

No birds defend their eggs or young with more matchless courage than the Ring-Ouzel. Approach their treasure, and, although you have no knowledge of its whereabouts, you speedily know that you are on sacred ground, or, more plainly speaking, on the nesting-site of this bird of the moor. *Something* sweeps suddenly round your head, probably brushing your face. You look round; and there the Ring-Ouzel, perched close at hand, is eying you wrathfully, and ready to do battle, despite the odds, for the protection of her abode. Move, and the attack is renewed, this time with loud and dissonant cries that wake the solitudes of the barren moor around. Undauntedly the birds fly round you, pause for a moment on some mass of rock, or reel and tumble on the ground to decoy you away. As you approach still closer, the anxiety of the female, if possible, increases; her cries, with those of her mate, disturb the birds around: the Red Grouse, startled, skims over the shoulder of the hill to find solitude; the Moor-Pipit chirps anxiously by; and the gay little Stonechat flits uneasily from bush to bush. So long as you tarry near their treasure the birds will accompany you, and, by using every artifice, endeavour to allure or drive you away from its vicinity. Even when the nest is but half built, the birds display remarkable attachment to it, as is also the case with the Chaffinch; and the same motions are gone through as though it contained eggs or young birds.

Upon leaving the nest the young birds are soon abandoned by their parents, and fly about singly or in little parties in search of food.

The general colour of the adult male is a uniform very dark brown, approaching black, with the exception of a nearly white gorget extending across the lower throat from shoulder to shoulder; most of the feathers of the body show traces of pale margins, more or less conspicuously. Bill yellow; legs, feet, and claws brown; irides dark brown. The female differs from the male in being much duller brown, and the white gorget is suffused with brown. Birds of the year have very broad margins to the feathers of the underparts. In young females the gorget is scarcely perceivable; in young males it is also suffused with brown. Young in nestling-plumage have the back and breast barred with black and pale brown, and have ochraceous tips to the wing-coverts.

The nearest relation of the Ring-Ouzel is undoubtedly the Blackbird, and the next nearest is the South-Chinese Ouzel (*M. mandarina*), all three black-legged Ouzels. The White-collared Ouzel of the Himalayas bears a superficial resemblance to the Ring-Ouzel; but the pattern of its colour is quite different, the white collar going completely round the neck; and it belongs, moreover, to the yellow-legged group of Ouzels.

MERULA ATRIGULARIS.

THE BLACK-THROATED OUZEL.

Turdus atrogularis, *Temm. Man. d'Orn.* i. p. 169 (1820); **et auctorum plurimorum** —*Meyer*, *Gould*, *Gray*, *Blyth*, *Bonaparte*, *Newton*, *Harting*, *Dresser*, &c.
Turdus bechsteinii, *Naum. Vög. Deutschl.* ii. p. 310 (1822).
Cichloides bechsteinii (*Naum.*), *Kaup*, *Natürl. Syst.* p. 153 (1829).
Sylvia atrogularis (*Temm.*), *Savi*, *Orn. Tosc.* iii. p. 203 (1831).
Merula atrogularis (*Temm.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 17 (1838).
Turdus atrigularis (*Temm.*), *Keys. u. Blas. Wirb. Eur.* pp. li, 177 (1840).
Turdus varicollis, *Hodgs. MS. Drawings* (*in the Brit. Mus.*) *of B. of Nepal*, *Passeres*, pl. 148, nos. 198, 199, & pl. 149, nos. 198, 199 (*icon. ined.*).
Merula leucogaster, *Blyth*, *J. A. S. Beng.* xvi. p. 149 (1847).
Planesticus atrogularis (*Temm.*), *Bonap. Cat. Parzud.* p. 5 (1854).
Cichloides atrigularis (*Temm.*), *Tytler*, *Ibis*, 1869, p. 124.
Turdus mystacinus, *Severtz. Turkest. Jevotn.* pp. 64, 118, 119 (1873).

The occurrence of this Ouzel in England, so far from its true home, together with the fact that its eggs are here described for the first time, renders it a species of considerable interest, not only to British ornithologists, but to all European naturalists who take an interest in the regular migration or nomad wanderings of birds. Its only claim to rank as a British species rests on a a single example taken in the south of England during the winter of 1868. Its occurrence was recorded by Mr. T. J. Monk, into whose possession it came, in the 'Zoologist' for February 1869, p. 1560, thus:—"On Wednesday, 23rd of December, a fine example of the Black-throated Thrush was shot near Lewes. The bird, which proved on dissection to be a male, was in excellent condition, and, having been carefully handled, was in fine order for preservation, and in this respect has received ample justice from the hands of Mr. Swaysland of Brighton, where it may be seen." Mr. G. D. Rowley also brought the circumstances before the Zoological Society of London, where the bird was exhibited. He said (P. Z. S. 1869, p. 4):—"The specimen of *Turdus atrogularis* was shot near Lewes, Sussex, on December 23rd, 1868. It is a young male, as shown by its plumage; dissection also confirmed the fact. I saw the bird in the flesh, and took particular care to ascertain its history, because it belongs to the fauna of Central Asia, and is only an accidental visitor to Europe. To find such a species on the south coast of England appears to me a matter of considerable interest. It is now in the collection of T. J. Monk, Esq., of Mountfield House, near Lewes, who purchased it for a trifle of a working man." The late Mr. Gould also recorded its capture in the 'Ibis' for 1869, p. 128.

The Black-throated Ouzel is only known as an occasional straggler into Europe, where it has been obtained in Russia, Germany, Denmark, Belgium, France, and Italy. Like White's Ground-Thrush and the Siberian

Ground-Thrush, the Black-Throated Ouzel belongs to the Eastern Palæarctic Region, and is one of many Siberian birds which are in the habit of occasionally missing their way on their autumn migration, and wandering into Europe instead of South Asia. I met with it twice in the valley of the Yenesay on my return journey from the Arctic regions, between latitudes 60° and 63°, early in August; I found it a very noisy active bird. I was too late for eggs; but the not fully fledged young, three of which I secured, were a source of great anxiety to their parents, whose alarm-notes resounded on the skirts of the forest on every side. They principally frequented the neighbourhood of the villages on the banks of the river, where the forest had been cut down for firewood, and clumps of small trees were scattered over the rough pastures where the cattle of the peasants are turned out to graze in summer. They showed a marked preference for the pines, and were very wary. The males kept out of gunshot; and I only obtained one adult, a female.

It probably also breeds in the same latitude of the Obb, and in a similar climate in the pine-regions of the Himalayas and Eastern Turkestan. It winters in Western Turkestan, Baluchistan, and North India, occurring on migration as far eastwards as Lake Baikal, and in winter as far as Assam.

Severtzow says that it breeds in Eastern Turkestan in the cultivated districts, gardens, grassy steppes, and salt plains, up to 4000 feet above the level of the sea; and there cannot be much doubt that it breeds also at a considerable elevation in the pine-regions of the lofty Himalayas. In winter when the Arctic forests are frost-bound, and all its northern haunts untenable, the Black-throated Ouzel is quite a common bird in Baluchistan and North India, where it regularly spends the cold season. In India its winter haunt is the more open woods at a level of from 3000 to 8000 feet, and it is occasionally seen on roads and pathways. In Baluchistan its haunts (according to Blanford) are the miserable apologies for gardens at Guádar, one of the most desolate of inhabited spots on the earth's surface, in the vicinity of houses, and on the sand-downs near the sea; and in other districts it frequents well-wooded plains. In Eastern Turkestan it winters amongst the trees bordering watercourses or growing near tanks. Favourite places to observe these birds in the winter, according to Dr. Scully (Stray Feath. 1876, p. 80), are amongst the sand-hills and low scrub-jungle; and further on (p. 140) he says that "the birds disappear entirely in the spring, migrating in a north-easterly direction, towards the hills and the Lob district, where it is reported to breed. It feeds chiefly on *Eleagnus*-berries, called 'jigda' in Turki, and commonly known as 'Trebizond dates;' hence its name Jigda-chuk, *i. e.* 'jigda-eater.' This food is also varied with insects and worms, much similar fare to that selected by the other members of this family of birds."

Nothing is known of the nest of this bird; but a series of its eggs has been obtained by Herr Tancré's collectors on the Altai Mountains. They exhibit the same variation in colour as the eggs of the Blackbird, and measure from 1·2 to 1·15 inch in length, and from ·8 to ·75 inch in breadth. The young in nestling-plumage which I brought from the valley of the Yenesay are very like the young of the Fieldfare, although the chestnut wing-lining and axillaries distinguish them at a glance, as also from the young of another closely allied Asiatic bird, of which I had the good fortune to obtain both eggs and young, the Dark Ouzel (*Merula obscura*).

The autumn plumage of the Black-throated Ouzel is olive-brown above, darkest on the wings and tail; below, the throat and breast are black, with pale margins to the feathers, and the sides and flanks are greyish brown, becoming pure white on the belly. The wing-lining and axillaries are rich chestnut. During winter and spring the edges to the feathers are cast; and the nuptial plumage displays the throat and breast pure black, the white of the underparts more distinct, and the whole colour of the upper parts much paler. Bill dark brown above, pale below; legs and feet pale brown; irides dark brown. Females want the black on the throat and breast, the feathers having dark centres, except on the lower throat, which is uniform creamy white. Males of the year are like old females.

The nearest relation of the Black-throated Ouzel is undoubtedly the Red-throated Ouzel (*Merula ruficollis*). So nearly allied are these species that there seems every reason to believe that they interbreed. In the Berlin Museum is a complete series of intermediate forms, from one to the other, including both extremes, all collected by Dybowsky on the southern shores of Lake Baikal in April and May.

The Gold-vented Bulbul (*Pycnonotus capensis*) has no claim whatever to be considered a British bird, or even an accidental visitor to Europe. It has been included in the list in consequence of a single alleged occurrence more than forty years ago: this bird may have escaped from a cage, or it may have been accidentally changed for a foreign skin. The only example on which its claims to the British fauna rest is a specimen alleged to have been shot near Waterford, and which was in the collection of Dr. Robert Burkitt. In the same collection is also an example of *Bubo capensis*, which is represented to have been shot in Ireland and which is labelled *Bubo maximus*—a circumstance which throws great doubt on the accuracy of the localities of the birds in this collection, and suggests the idea that the specimen of the Gold-vented Bulbul was also a South-African skin. The true home of the Gold-vented Bulbul is South Africa, where it seems to be exclusively confined to the Cape Colony.

It is a common mistake, into which many ornithologists, and amongst them Professor Newton in his edition of Yarrell's 'British Birds,' have fallen, to suppose that the Bulbuls of modern naturalists belong to the same group as the Bulbul so celebrated in eastern song. The latter is the Persian Nightingale, *Erithacus golzii*. None of the birds which ornithologists call Bulbuls have any great powers of song, unless it be the Palestine Bulbul, *Pycnonotus xanthopygus*, which, in Canon Tristram's opinion, almost equals the Nightingale in power of voice.

The general colour of the Gold-vented Bulbul is brown, a little darker on the head, wings, and tail; it is almost white on the centre of the belly, and has the under tail-coverts bright yellow.

Genus CINCLUS.

The genus *Cinclus* was established by Bechstein in 1802, in his 'Ornithologische Taschenbuch,' i. p. 206. As *C. aquaticus*, or one of its numerous local though unnamed races, was the only species with which Bechstein was acquainted, it becomes of necessity the type of his genus. It contains the Dippers, which may be distinguished from the true Thrushes by their short concave wings fitting tightly to the body, and their dense plumage, adapted to their aquatic habits.

The Dippers, of which about a dozen species are known, extend over the entire Palæarctic Region wherever mountain-streams occur; but in the Indian Region they are apparently confined to the Western Himalayas and the mountains of China and Formosa. In the Nearctic Region they are found throughout the Rocky Mountains, in the same chain through Central America into the Neotropical Region, where they are found in the Andes of Colombia, Ecuador, and Peru. One species is resident in the British Islands.

Ornithologists differ in opinion as to the affinities of the Dippers. Brisson was hopelessly wrong in placing them amongst the Sandpipers; and Linnæus was probably mistaken in considering them to be Starlings. I think Latham was not far wrong in including them amongst the Thrushes, though Sharpe appears to think otherwise and has placed them with the Wrens. The Dippers are probably most nearly allied to the subgeneric group of Ground-Thrushes known as *Zootheræ*. Most of the species, however, have lost the Geocichline pattern on the wing; but the American species still retain it, although in a somewhat rudimentary condition. They are aquatic in their habits, frequenting mountain-streams and obtaining most of their food from the waters. Their food consists of aquatic insects, ova of fishes, and Mollusca. They are fair songsters. They build bulky nests, domed, and made of moss, dry grass, leaves, &c., placing them under banks, amongst rocks, or between the roots of trees. Their eggs, from four to six or seven in number, are, so far as is known, pure white.

CINCLUS AQUATICUS.

COMMON DIPPER.

(PLATE 11.)

Tringa merula aquatica, *Briss. Orn.* v. p. 252 (1760).
Sturnus cinclus, *Linn. Syst. Nat.* i. p. 290 (1766).
Turdus cinclus (*Linn.*), *Lath. Ind. Orn.* i. p. 343 (1790).
Turdus gularis, *Lath. Ind. Orn. Suppl.* p. xl (1801, juv.).
Cinclus aquaticus, *Bechst. Orn. Tasch.* p. 206 (1802); **et auctorum plurimorum**—*Meyer, Temminck, Naumann, Gould, Bonaparte, Schlegel, Salvin, Newton, Dresser, Sharpe*, &c.
Aquatilis cinclus (*Linn.*), *Montag. Orn. Dict. Suppl.* (1813).
Cinclus europæus, *Leach, Syst. Cat. Brit. Mus.* p. 21 (1816).
Hydrobata cinclus (*Linn.*), *Gray, List Gen. B.* p. 35 (1841).

The Dipper, in spite of sundry dark tales and grave charges, is almost universally the angler's favourite—a bird of the stream, from its birth amongst the peat and heather high up the mountains, throughout its wandering course of fall and pool and rapid. Its distribution in Great Britain is chiefly confined to the mountainous districts of the west and north of England, including Wales, and throughout Scotland, extending to the Outer Hebrides and the Orkneys, but not to the Shetland Isles. In Ireland it is found in similar localities to those in Britain—mountain-streams and wild uplands, its distribution being affected by the nature of the country. Wherever the waters are wild enough, either in the countries of the south or the upland wilds and mountain-districts of the north, the Dipper is pretty sure to be commonly found, naturally becoming much more frequent in the Highlands of Scotland, where it is provincially known to a very great extent as the "Kingfisher."

The Dipper in a more or less modified form appears to occur throughout the Palæarctic Region and the Himalayas wherever rocky mountain-streams are to be found. Modern evolutionists seem to have come to the conclusion that the successive stages of the development of the individual are more or less an epitome of the history of the species. If we accept this theory, the attempt to interpret the changes of plumage which our Dipper undergoes would probably lead to the conclusion that the genus *Cinclus* originated in Central Asia, whence it spread east and west to North America and Europe. The original form probably differed little from typical examples of *C. leucogaster*, which we may accept as the slightly changed descendants of the Preglacial Dippers of that region. I say slightly changed, because the young in first plumage, not only of our Dipper, but of all the known Dippers of the world, besides retaining the nearly white colour of the whole of the underparts, show traces of dark tips to the feathers, which disappear in the adult of *C. leucogaster*, but which were probably characteristic of its Preglacial ancestors. In the course of ages the original Dipper with the spotted underparts appears to have become separated into two species. In the western form circumstances seem to have favoured the development of the white of the underparts, whilst in the east the reverse appears to have been the case, so that during the Glacial period it is probable that there were two species of Dipper—a form with white underparts in the west, and one with dark brown underparts in the east. It seems not improbable that at this time the Dipper was a migratory bird, its small bastard primary being possibly a relic of its past powers of flight; and as the Glacial period passed away, and the rapid and important development of Palæarctic birds which accompanied the semitropical period which followed took place, the Dippers seem to have caught the general spirit of enterprise, and some of the eastern race seem to have spread along the eastern coast of Asia and to have crossed Behring's Straits into America, and, following the Rocky Mountains to Central America, seem to have reached the Northern Andes. Amidst their new surroundings they have comparatively rapidly changed their character; and those birds which reached South America have reverted to the particoloured plumage of their ancestors, though in somewhat new and modified forms.

As the other species of Dipper spread eastwards, the influence of the changed climate, or some process of natural selection which may some day be discovered, caused the underparts below the breast to become a sooty black, a character which is still retained by the adults of many of the present Western Palæarctic Dippers and by the birds of the year of all the European species. This circumstance has given rise to much confusion in the accounts of the geographical distribution of the dark-bellied form *C. melanogaster*. Dresser records it from Ireland and England, Newton from Spain, and Salvin from Asia Minor. In all these cases it will probably be found that the examples which have been identified as *C. melanogaster* are *birds of the year* of the species inhabiting the countries where they were severally obtained.

It seems to me that there is only one species of Palæarctic Dipper, which may be divided into many subspecies or local races which are imperfectly segregated, and interbreed whenever they come together. It is difficult to see how any differences which they present can have any protective value; they may possibly be due to undisturbed climatic influence. In the British Islands *C. aquaticus* occurs, the damp climate caused by the Gulf-stream having developed the chestnut on the belly to its greatest extent, and the cold having in some mysterious way blackened the brown of the head and nape. Further south in the Vosges Mountains and in the Pyrenees *C. aquaticus-albicollis* occurs, an intermediate form between the British and Mediterranean races. The latter, *C. albicollis*, differs in having the upper parts much paler than in our bird. It is found in Southern Spain, Algiers, Italy, and Greece. In Asia Minor, the Caucasus, and Persia the chestnut on the belly is much darker and the brown of the head and nape extends lower down the back. This form may be called *C. albicollis-cashmiriensis*; for in the latter race (*C. cashmiriensis*), which ranges from Cashmere, through South Siberia, to West China, the brown of the head and nape attains its greatest development on the back, and all traces of chestnut on the breast are lost in the brown of the belly. This race would appear to interbreed, on the one hand, with *C. leucogaster*, for in Krasnoyarsk (where the ranges of the two forms coalesce) every intermediate form is found,—and, on the other hand, with *C. sordida*, for in the Altai Mountains (where the ranges of these two forms coalesce) every intermediate form occurs. In Scandinavia and the adjacent countries of North Germany *C. melanogaster* is found with dark head and neck, and with the chestnut below the breast replaced by nearly black. This race is connected with the South-European form by what we may call *C. melanogaster-albicollis* from the Carpathians, in which the chestnut reappears below the breast.

Besides these variations there are others still more local. In the Peak of Derbyshire, for example, the Dippers, which are found 1500 feet above the level of the sea, are darker in colour than those which are found lower down the valleys, only 500 feet above the sea-level. The same differences have been recorded in Dippers from the Pyrenees; and it is birds of the year of these forms from high elevations which have led so many ornithologists astray in speaking of the geographical range of *Cinclus aquaticus*, var. *melanogaster*.

The haunts of the Dipper are exclusively confined to the swift-flowing rocky mountain-streams. On these he is found all the year round, in places where the waters now curl over hidden rocks, or dash round the exposed and mossy ones, and toss and fall in never-ceasing strife. The banks must be rugged also to suit the Dipper, all the better if in the rock-clefts a few mountain-ashes and birches have gained a good hold. But the Dipper is not a bird of the branches. You will make your first acquaintance with him most probably as he dashes rapidly from some water-encircled rock, or as he shoots past you uttering his sharp but monotonous call-note, to alight on some distant stone, or mayhap seek the boiling current itself, to astonish and amuse you by his aquatic gambols. The Dipper is also found on the barest of mountain-torrents, places where not a tree or shrub is found, where the waters roll and tumble in wildest mood across the heathery moors, and down the bare mountain-sides. In the British Isles the Dipper is not a migratory bird, the only wanderers being young birds which emigrate or are driven by their parents from too crowded districts. During the keenest weather the resident Dippers do not quit the waters of the roaring stream, and are as active amongst the icicle-draped rocks as when the summer sun was scorching them with its meridian rays. The very fact of the stream being ever in troubled motion is the cause of the perpetual residence of the Dipper on its banks; for the frost never binds its troubled waters, and thus his food is always accessible. A bird full of activity, he flies in rapid Kingfisher-like course, now alighting on the grassy banks, and then on the rocky boulders round which the foam-crested waters dash and boil in seemingly exhausted rage. Sometimes he skulks, and is flushed with greatest difficulty, often flying as though he were disabled; but should you be tempted by his seeming helplessness to pursue him, he takes good care to evade you, advancing in short flights it is true, and gradually going up or down stream for a certain distance, until all at once he refuses to be driven any further, flies off determinedly, and, passing high over your head, doubles back to his old quarters again, as if afraid to trespass too far on the hunting-grounds of the neighbouring pair of Dippers. Except in the breeding-season, the Dipper is for the most part a solitary bird, and is rarely found in the company of any other species. The pairs of birds appear to haunt a certain part of the stream, to which they strictly keep, and are but rarely observed in company. Should the ornithologist wish to observe the actions of the Dipper, he must approach him with the greatest caution; for he is a shy and wary bird. But ample means of concealment are at hand; and by hiding behind one of the rocky boulders and remaining quiet and motionless you may observe his actions with ease, so long as his restless nature allows him to remain in your company. You probably see him first perched on a stone projecting out of the water a few inches, or, it may be, standing in the water itself. Warily he looks around, now crouching low as if fearful of discovery, now erect as if on the point of taking wing. Now he fearlessly enters the water, and, aided by his wings, floats buoyantly to land, where you see him running and hopping about, picking up the small insects found amongst the marshy shores of the stream. Then he will sit for a few moments on the bank, motionless as a statue, and you cannot help admiring the purity of his breast, white as the driven snow. Suddenly, and doubtless to your surprise if you are unacquainted with his habits, he takes to the water and disappears under the surface, and, aided by his wings and feet, explores the sand and moss-grown pebbles at the bottom of the pool, turning the little stones with his bill, in search of the various water-insects that form his food. He will proceed for a certain length of water, then return, sometimes swimming aided by his wings, and sometimes darting under the surface, occasionally pausing to rest for a moment on a projecting rock. Sometimes the Dipper, seemingly for very sport, enters the boiling pool below the falls, or dives under the foam-crested waves of the tiny rapids; and you may sometimes see him splashing in the water, as if trying again and again to reach some object. Perhaps he was foiled in his first attempt; or it may be that he has found a colony of caddis-worms and acts upon the sportsman's motto of sticking to his covey. But where the stream glides on more smoothly he obtains the most part of his food—places where the bed of the stream is a mossy one, and affords plenty of shelter for his favourite fare. The sandy islets in the stream and places where driftwood and other refuse congregate are favourite haunts of the Dipper, as are also the falls below the weirs and water-wheels.

In studying the habits of the Dipper it will be observed that the bird never enters the water by a sudden plunge, like the Tern or the Kingfisher, but either wades into it or drops from some little eminence. In fact the Dipper does not need that amount of force which the Kingfisher and the Tern require to carry them beneath the surface; for its proficiency as a diving bird is at once manifest when seen in the water; hence the reason it is never seen to plunge. When under the surface of the water, the form of the Dipper seems largely increased in size and distorted, and the number of air-bubbles that cling to its plumage give it a very peculiar appearance. When alarmed the Dipper instantly takes wing, and does not, as is erroneously supposed, enter the water for safety, unless disabled, when it will sometimes take refuge under the banks with only its bill out of the water. The Dipper's flight is rapid and straightforward, and performed by incessant beats of the wings, as if it required such constant exertion to sustain flight that the little rounded pinions must not stop for a moment. Usually he flies along just above the surface of the stream; and, as a rule, the devious windings of its course are followed. The Dipper will sometimes sit for a considerable time on some stone in the centre of the stream, or on a rock projecting over the pool—a habit also common to the Kingfisher.

The Dipper, like the Redwing and the Starling, often warbles a few notes in mild open weather in winter; but his love-song is rarely heard before the spring. His song is a short and pleasing one, and uttered at irregular intervals. It bears no resemblance to the varied song of the Thrush or the melody and wild loudness of the Blackbird or the "Storm-cock," but is a low warbling strain. He carols his lay from the banks of the stream, or not unfrequently when crouching low on the rocks in the midst of its roaring waters. There, with the milk-white foam dancing on the crests of the waves and the spray falling like mist around him, he chants his love-song, a performance which only greets the ear at intervals, amidst the turbid strife of the ever-flowing waters, making the romantic scene still more romantic, and giving it just that touch of life required to make the picture complete. The call-note of the Dipper, uttered when at rest or flying through the air, and most frequently heard just as the bird is taking wing, is a sharp but not particularly loud *chit-chit.*

When I was in the Pyrenees last winter we visited Pierrefitte, where the valley divides into two gorges. We took the one leading to Baréges. The sun was burning hot; but there was hoar-frost and ice in the shade. The gorge is very fine: sometimes there is a little grassy land near the rocky river; but in other places the valley becomes narrower, and for a long distance is only a ledge which has been blasted out of the steep sloping rock, and you can look down a couple of hundred feet and see the river boiling and roaring in the chasm below. The gorge is well timbered, shrubs and trees even growing in the crevices of almost perpendicular rocks. In winter it is not easy to see what the trees are; but oaks and chestnut seemed to abound, and the abundance of misseltoe was very striking. We noticed a quantity of juniper and box-trees in the underwood, whilst high up near the mountain-tops the sombre pine-forests looked almost black against the snow. This gorge was a paradise for Dippers; almost every hundred yards we came upon a pair. We watched them chasing each other up and down the river and screaming almost like Swifts. More often they were conspicuously perched upon a rock in the stream, perpetually dipping down their heads and jerking up their tails. Several times we watched them wading in the shallow water or swimming and diving in the deeper pools. Now and then they perched on the mossy banks and seemed to fly up and catch insects on the overhanging moss.

Doubtless from the peculiar manner in which the Dipper seeks its food, and the situations in which it is chiefly found, the bird has gained much of its reputation as an enemy to the ova of the salmon and the trout. The Dipper is seen to enter the stream, to disappear beneath the surface, and explore what are well known to be the breeding-grounds of these fish; and hence it is very easy to see why the bird has fallen into such bad repute with the ignorant pisciculturist and the bigoted angler. Not taking the trouble to seriously investigate the matter, they at once set down the poor Dipper as the enemy of the ova and fry, and persecute him accordingly—a fate that befalls too many harmless animals. But instead of being the fish-preserver's enemy, he is in fact one of his firmest friends. His food consists of various creatures which, in their larval stages of development, are themselves the greatest enemies to the ova. His journeyings to the bed of the stream are for the purpose of obtaining the caddis-worms, water-beetles, and various species of small mollusca and insects found amongst the moss-grown pebbles and sandy bed of the waters, and occasionally a small fish. He also obtains some portion of his food on the marshy banks of the stream, such as worms and grubs and, more rarely, the seeds of various grasses.

From what evidence it is possible to obtain on the subject, it is most probable that the Dipper is a life-paired bird, and either frequents each season the same nest or constructs a new one close to that of the previous year. The Dipper's nesting-season commences early in the year; and possibly two, if not three, broods are reared. By the first week in April, should the weather be at all favourable, the birds are engaged in nest-building. The site for the nest is usually amongst the rocks, never in a tree or bush, although occasionally amongst their gnarled and moss-grown roots. A favourite place is amongst the tree-roots which prevent an overhanging bank falling into the water below—as is also a mossy bank, or a hole in the stonework near a water-wheel, or under a bridge. The nest is not unfrequently found within a few inches of the water, and occasionally in the rocks over which the water rushes in mad career, passing directly before the nest, and keeping it in an incessant state of moisture by the spray continually beating against it. Although placed in a most conspicuous position, it is so artfully concealed that its discovery is often a difficult task. The site chosen, the materials have not far to be sought. The moss which grows in luxuriant profusion all around is selected; and the outside of the nest at least is composed entirely of this soft and beautiful material. In form it is somewhat like the Wren's, domed; but the hole which admits the parent birds is very low down the side, and can seldom be seen unless from below, the entrance overhanging a little. Inside this mossy dome a nest of the ordinary open style is constructed, apparently quite distinct from it, without being in any way woven into it. In a nest which I carefully pulled to pieces, the inside nest was composed of dry grass, the roots of heather, and slender birch-twigs, and lined with a profusion of leaves, layer after layer of birch- and beech-leaves, and, as a final lining, a mass of oak-leaves, laid one on another, like leaves in a book. The outside dome was so closely woven together of moss, with here and there a little dry grass, as not to be torn to pieces without considerable force; and the inside nest was so tightly compacted, that, when the materials were pulled to pieces you could hardly believe that they could have been made to take up so little room. Outside it appeared nothing but a large oval ball of moss, about 11 inches long, 8 inches wide, and about as high. Keen and piercing must be the eyes of him who can, at a casual glance, discern the home of the Dipper when placed amongst the moss-grown rocks; for it is just like a piece of the bank on each side of it, or, if placed on the bare rock-ledges, it only looks like a patch of moss. The eggs of the Dipper are four or five in number, and can never be confounded with the eggs of the Thrushes, except in size and form. They are pure white and spotless, somewhat less than a Song-Thrush's egg. The shell, however, does not possess that beautiful gloss so characteristic of the eggs of the Kingfisher and the Woodpecker, and is somewhat rough in texture. They vary in length from 1·1 to 0·95 inch, and in breadth from 0·77 to 0·7 inch.

Like the Starling and many other life-paired birds, the Dipper will continue laying in the same nest if its first clutch of eggs are removed. The old birds display great caution in returning to and quitting the nest; and should you discover it, they manifest little or no outward signs of anxiety for the safety of their treasure. The Dipper is a very close sitter, and seldom quits the nest until the hand is about to be inserted. Should the nest be approached when it contains full-fledged young, the little creatures will often escape out of the nest; and I have seen them flutter to the water, dive into the clear stream, and swim away, their dark bodies looking grey through the air-bubbles clinging to their plumage. They jerk their wings lustily, in a manner not unlike a frog with its hind legs, and, rising to the surface where the waters become shallow, float down the stream and are soon out of view.

The Dipper, from the peculiar manner in which the colour of its plumage is distributed, is a remarkably fine and handsome-looking bird. The whole of the upper parts are slaty grey, except the head, which is brown, with paler margins to the feathers of the back. The chin, throat, and upper parts of the breast are pure white, and the remainder of the underparts chestnut-brown. The bill is black; the legs, toes, and claws brown; irides hazel. The sexes are alike in the colour of their plumage.

Genus ERITHACUS.

The Robins were originally included in the genus *Motacilla* of Linnæus, from which, in 1769, Scopoli separated a number of species, including the Robin, and placed them in his genus *Sylvia*. In 1801, Cuvier, in his 'Leçons d'Anatomie Comparée,' tab. ii., separated the Robins, establishing the genus *Erithacus* for their reception. Since then they have been unnecessarily split up into groups which it is most convenient to consider only of subgeneric value. Cuvier did not indicate any type; but there can be little doubt that he regarded the Robin as typical.

There is no character that I have been able to discover in the Ouzels that is not to be found in some of the Robins; nor have I been able to discover any character in the Robins which does not exist in some of the Ouzels. The only definite character appears to be that of size, the smallest Ouzel being larger than the largest Robin. From the Redstarts and Chats and allied genera they may be distinguished by having either pale legs or the throat brilliant in colour, in violent contrast to the cheeks. In the Robins the bill is generally black on the upper mandible—a character which will serve to distinguish them from the smaller Ouzels, which have the bill yellow. From the smaller Thrushes they may be distinguished by having the underparts unspotted; whilst from the Flycatchers and the Stonechats their much longer tarsus serves to distinguish them. The Robins have the throat frequently ornamented with rich colours, in some species having a metallic gloss; and the cheeks usually differ in colour from the throat.

The Robins frequent bushes, several of them showing a marked preference for swamps, and are principally migratory. They all possess considerable powers of song. They breed on or near the ground, building open nests, either amongst herbage, foliage, or in holes. They lay from five to seven eggs, which vary from pure white to bluish green in ground-colour, generally sparingly marked with pale confluent brown spots. Their food is chiefly insects and worms.

There are sixteen species in the present genus, confined to the Palæarctic region, the northern portion of India, Mongolia, China, and Japan. Half the species occur in Europe; and three are British, of which one is a resident, one a summer migrant, and the other an accidental visitor.

ERITHACUS RUBECULA.

THE ROBIN.

(PLATE 9.)

Ficedula rubecula, *Briss. Orn.* iii. p. 418 (1760).
Motacilla rubecula, *Linn. Syst. Nat.* i. p. 337 (1766); **et auctorum plurimorum**—(*Scopoli*), (*Temminck*), (*Gould*), (*Gray*), (*Heuglin*), (*Salvadori*), (*Newton*), (*Shelley*), (*Dresser*), (*Irby*), (*Blanford*), &c.
Sylvia rubecula (*Linn.*), *Scop. Ann. I. Hist. Nat.* i. p. 156 (1769).
Curruca rubecola (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 25 (1816).
Curruca rubecula (*Linn.*), *Forst. Syn. Cat. Brit. B.* p. 54 (1817).
Ficedula rubecula (*Linn.*), *Boie, Isis*, 1822, p. 553.
Dandalus rubecula (*Linn.*), *Boie, Isis*, 1826, p. 972.
Erythacus rubecula (*Linn.*), *Swains. Faun. Bor.-Amer., Birds*, p. 488 (1831).
Rubecula familiaris, *Blyth, Field Naturalist*, i. p. 424 (1833).
Rhondella rubecula (*Linn.*), *Rennie, White's Selborne*, p. 437 (1833).
Lusciola rubecula (*Linn.*), *Keys. u. Blas. Wirb. Eur.* pp. lviii, 191 (1840).
Rubecula rubecula (*Linn.*), *Bonap. Consp.* i. p. 295 (1850).
Luscinia rubecula (*Linn.*), *Sundev. Sv. Fogl.* p. 56 (1856).

The Robin, so closely associated with all our earliest recollections of the bird-world, the ever-trustful, pert, and lively little favourite and companion of man, is welcome everywhere, protected and encouraged; and hence its distribution is a wide one, and its numbers as large as its popularity is universal. Wherever man's abode may be, if only surrounded by trees and shrubs, even a garden alone, the Robin is almost surely found. Throughout Great Britain and Ireland it is everywhere a well-known bird in those localities where there is sufficient cover. The Robin, like the Sparrow, is a close attendant on cultivation and improvement. Formerly it was a rare bird on the wild and desolate Hebrides; but now it is comparatively common, as improvement and the planting of trees and shrubs have increased. It breeds as far north as the Orkneys, but has not yet been known to do so on the Shetlands, and only rarely occurs on the Faroes in the autumn. The Robin breeds throughout Europe as far north as the Arctic circle, rarely beyond; but becomes of far less frequent occurrence in Russia, and is not known to breed east of the Ural Mountains. Southwards its breeding-range extends to many parts of western North Africa, the Canaries, Madeira, and the eastern and central group of the Azores.

In those districts where the winters are severe, it migrates southwards in autumn to South Europe, North Africa, Palestine, and the cultivated districts of North-west Turkestan. It is said to be a resident, though rare, in South Persia.

The Robin has one very near ally, the Persian Robin (*Erithacus hyrcanus*), inhabiting the forests of the southern shores of the Caspian, westwards into the Caucasus; and another, not so near, the Japanese Robin (*E. akahige*), inhabiting the high mountains of Japan and North-east China. The former bird is easily distinguished from the Common Robin by having the olive-brown of the upper tail-coverts replaced by rich chestnut, and by having a slightly larger bill; in other respects the two birds are identical. From the second species our bird is easily distinguished by the rich chestnut tail of the Japanese species, and the slate-grey on the lower breast. The Persian Robin has been said to be richer in colour, especially on the breast, than our bird; and examples of the latter from Algeria and the Azores are said to be paler; but an examination of a considerable series convinces me that the alleged differences are only those of season, the rich dark birds being newly moulted autumn examples, whilst the paler specimens are in more or less faded summer plumage, the Robin, like all its Turdine allies, having only one moult in the year.

The haunt of the Robin is varied a little according to the season. In the summer it is a common bird in the most secluded woods, in plantations, shrubberies, dells, lanes, copses, and hedgerows. In winter it draws nearer to the houses, and haunts the gardens, road-sides, and farmyards. But the bird may be seen near the homesteads throughout the year; and its numbers are only increased during the cold season. Where, indeed, is the garden, the orchard, or the shrubbery that does not possess its pair of Robins, so trustful, so jealous of their rights—the favourites of all!

The migrations and internal movements of the Robin form one of the most interesting, although perhaps least known, features of its history. Take its wanderings at home, for instance, in our own country. As soon as the rigours of winter have passed away, the Redbreasts visibly begin to decrease in numbers and betake themselves to the more sequestered woods, plantations, and hedgerows, and up the hill-sides to the copses near the moorland wastes, to remain throughout the summer. In the early autumn, when the moult takes place, the Robin is a still more shy and retiring bird, and withdraws to the deepest solitudes to perform its annual change of plumage unseen. After the moult the Robin again appears near our houses, and remains our constant companion and favourite throughout the winter. Upon the continent the Robin is almost universally a bird of passage, and during the season of its migrations is found on our coasts resting on its journey south to the warm climate of Southern Europe, or the oases of the African deserts. They pass over Heligoland during September and early in October in immense numbers. Upon the continent, in South France and Italy, the Robins are caught in autumn for the table, in common with other small migrants. In Italy they are usually snared or taken by limed twigs set round a Little Owl, which serves as an attraction to draw them to the toils. As for its worth as an article of food, Waterton, in his accustomed humorous way, tells us, when expressing regret at seeing so many of his favourites on the bird-stalls in the Roman market, that the dealer assured him that if he took a dozen for his dinner that day he would come back for two dozen on the morrow. Even in our own country the migratory instincts of the Robin are sometimes manifested during the prevalence of severe and prolonged frosts, the birds for the most part quitting their northern haunts and retiring southwards, leaving but a few birds whose exceptional trustfulness and familiarity render them semi-domesticated, and who require but little enticement to make them regular indoor guests. Few birds are more confiding in their nature, or more trustful in disposition, than the Robin, a circumstance that has won for it universal protection. It may be safely said that in all lands where the English language is spoken, some bird more trustful than the rest, or with a garb approaching the little songster of our own land in colour, is singled out and made a substitute for the Robin. The Americans call the Migratory Thrush, *T. migratorius*, the Robin; whilst in the Antipodes the Australian colonists have found a substitute in several members of the genus *Petroica*—a group of Chat-like birds, with bright red breasts, and possessing peculiarly sweet and plaintive songs.

The Robin, like the Chats and Redstarts, is almost constantly in motion. Now hopping from under the densest bushes out onto the lawn or garden-bed, he droops his wings, elevates his tail a little, and with several sharp bobbing motions, utters his few loud shrill call-notes, and sits and eyes you so trustfully, with head turned slightly aside, and his large dark eye betraying just a shade of fearfulness at your presence. He hops confidently towards you, perches daintily on some overthrown flower-pot, or on the spade you have left but the moment before, and seems to know he is a welcome guest and perfectly safe.

The Robin must be classed amongst the most pugnacious of birds, and guards most jealously his favourite haunt from intrusion. He is apparently recognized as the lord of all the smaller birds; and even the pert little Sparrows do not seem to care to try conclusions with him, and sometimes retire from the heap of crumbs as soon as the Robin appears. Even with its own species it is none the less quarrelsome and pugnacious, combats taking place between rival birds incessantly. Many are the instances on record of this peculiar trait in the Robin's disposition. Dixon writes:—"Upon one occasion I was strolling through a dense shrubbery, under the gloomy yew trees, when I heard a flutter amongst the withered leaves on the banks of a tiny rivulet flowing down a ravine. Closer inspection revealed a bird struggling in the water; and I went down the bank to find out the cause of this strange proceeding, and found a Robin tangled, as it appeared, in the herbage growing on the water's edge. I took hold of the bird with the intention of releasing it from its captivity, and was about to lift it up when, judge of my surprise, I pulled out from under the bank a second Robin that had evidently, when conquered, tried to seek safety by squeezing under the bank, also in the water. Both birds, like two warriors bold, were locked in deadly embrace, the one first seen being entangled in the breast-feathers of its antagonist by its claws; their plumage, too, was all wet and ragged, and they had lost many feathers. After keeping them for a short time, I restored them to liberty: the victorious one, I should say, flew quickly off, while its greatly exhausted antagonist just managed to gain a thick bush and was soon lost to view." Other instances of this bird's pugnacity might be given.

The Robin is a bird of the underwood, the thicket, and the hedgerow, and very similar in his peculiar shadow-like movements to the Hedge-Accentor; and, like that bird, he often frequents heaps of old wood in the farmyard, disused outbuildings, and heaps of hedge-clippings and other rubbish. Like the Accentor, the Robin hops from his cover into the open, and retires just as quickly and gracefully if disturbed. The Robin's flight is rarely indeed taken at any great elevation in the air, except whilst performing its annual wanderings, and is somewhat irregular if continued for any great distance. The Robin, however, seldom flies far, and always prefers to hide and creep through the branches and seek safety in the undergrowth and densest parts of its haunts to using its wings as a means of escape from impending danger. We certainly have not in Britain a more trustful little bird than the Robin; and, in the winter especially, he seems to know that man is his friend and protector.

The food of the Robin is varied a little according to the season of the year. During all the "open" months it lives on the smaller earthworms and various kinds of insects and their larvæ, obtaining the former food much after the manner of the Thrushes, and much of the latter as the Flycatchers and the Titmice. When the early gardening is going on, he attends the gardener; and ever and anon gliding quickly from his perching-place to the newly-turned earth, he takes the worms thrown upon the surface. In the bright sunny mornings, or in the cool grey dawn soon after sunrise, he is at work amongst the withered leaves and under the shrubs and garden-plants, seeking his morning meal, occasionally sallying out from a favourite perch to take the insects that are flitting in countless thousands in the air around. The Robin also explores nooks and crannies for larvæ, and will search for insects in the expanding buds, like the Finches or the Tits. Again, in fruit-time, when the summer is fast passing away, the Robin eats the cherries, currants, and other garden-fruits; while the Robin of the woods and fields makes a meal upon the various soft, luscious, wild fruits and berries. In winter, when insect food is scarce, the Robin not unfrequently seeks the sides of little watercourses, or draws near to the houses to subsist upon the crumbs and other fragments that are scattered for the poor frozen-out birds, and for "Cock Robin" in particular. At this season the Robin is also found in the farm-yards, and about manure-heaps, stables, and piggeries, the latter places especially, where he takes his meal from the troughs with the greatest confidence, seeming to know that he is a welcome and invited guest.

The Robin is one of our few perennial songsters, and warbles incessantly throughout the year, except for a few weeks in early autumn whilst undergoing his annual change of dress. We have scarcely a bird in Britain that possesses a song so rich and plaintive as that of the Robin—a song that possesses so peculiar a charm as to border on sadness, especially when it greets the ear in the decline of autumn when the year is fast ebbing away. When the Robin is in song the observer may have a convincing proof of his trustfulness and familiarity. He will approach quite closely within a few feet of your head, or sit unconcerned in the branches near you, with his bright dress contrasting with the surrounding foliage, and his soft dark eyes looking trustfully at you, and pour forth his charming song. Regularly every day the Robin will frequent some chosen perch to warble forth his notes, and will strictly guard this place from all intruders. The Robin is the countryman's best weather-guide; for when he sits high up in the branches it is a true sign of fine weather; or should he skulk down in the lower cover, it is a bad sign, and almost invariably fortells a wet day. Robins often sing in response to each other; and these concerts not unfrequently lead to combats, especially in the spring. The Robin is one of the first birds to greet the dawn with its song, and also one of the last, possibly *the* last, to retire in the evening, singing very often at midnight in early summer. The autumn song of the Robin is, perhaps, his best performance; or it may be that the total absence of other songs and the dreamy state of all nature at that season of the year lend it an additional charm. In the moulting-season the Robin is seen but occasionally and is never heard to sing; the young birds are most frequently seen, easily recognized in their sombre dress; and it is their sharp call-notes that are most frequently heard. Our other songsters, with few exceptions, lose their music with the autumn moult; but the Robin, as soon as this important operation, which takes place in July, is over, regains his powers of voice to warble throughout the winter. First we hear them sing in very small numbers; but as August passes away these numbers increase, and when September arrives they are in full song once more. There is nothing at this season of the year more beautiful than the song of the Robin.

The call-note of the Robin is a wonderfully sharp and clear one, and usually uttered several times in rapid succession, accompanied with a quick bobbing motion of the body. Its alarm-note in the nesting-season is a plaintive piping one, monotonously given forth every few moments, more quickly uttered should its nest be threatened by danger.

Paired, in many instances, for life, the Robin is another very early nest-builder. We find its nest in woods adjoining cultivated lands, in the shrubberies, under the hedgerows and banks in our gardens, in holes of walls and trees, and frequently amongst ivy. The Robin is another of those birds which often select curious sites for their nest. It has been known to build in an old water-can lying neglected and half buried in withered leaves.

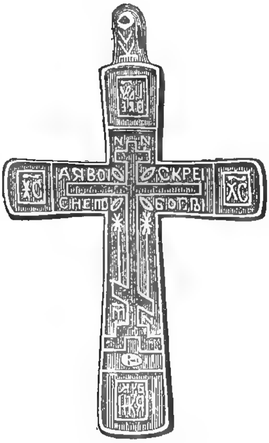
The Robin's nest is very bulky, and somewhat peculiar in its construction. In the first place, should the nest be on the ground, a small cavity is made as a foundation for future operations. Then with withered leaves, dry grass, and moss, a somewhat rude nest is made, but with a neat deep cup lined with hair, and sometimes a little wool, and rootlets, the latter material being the most extensively used. When examining the nests of this bird, it will be invariably noticed that the nest itself is at the extreme end of the nesting-cavity, and the "frontage" to the nest is exceedingly extended, a peculiarity noticed in the nests of very few birds; for the cavity containing the eggs, instead of lying in the *centre* of the nesting-materials, is on the side, as may easily be observed when the nest is removed from its original site.

The eggs of the Robin are from five to eight in number; but probably six may be taken as an average clutch. In ground-colour they are pure and shining white; the markings, which in some cases are very rich, are brown of various shades, red, and sometimes dashes and freckles of grey. In colour they differ considerably. Some are pure white without a trace of markings, others have a zone of colour round the larger end; many are so clouded with spots as to hide the ground-colour, while not a few are richly and boldly blotched with reddish brown, streaked with dark brown approaching black. The eggs possess a considerable amount of gloss, which fades to a very great extent after being kept any length of time. To be seen in all their delicate beauty they must be examined soon after they are laid and before the contents have been removed. They vary in length from 0·9 to 0·7 inch, and in breadth from 0·65 to 0·56 inch.

The Robin rears two and sometimes three broods in the year, but never in the same nest. This bird, however, will rear its young in certain localities for years if left unmolested. An instance is recorded of a certain site being tenanted for five successive years; but every year the old nest was removed, leaving a clear site for the little builders.

What becomes of the great numbers of Robins which, on account of the bird's immunity from persecution, must of necessity be reared in this country? Considerable discussion has of late years taken place respecting this subject; and many are the reasons advanced to account for the bird's numbers still remaining about the same. Without doubt the Robin is, to some extent, a migratory bird, even in our own land; and many of the young birds pass southwards in the autumn, and never come back again: many die from the dangers of the journey; and some probably settle elsewhere. The young of most birds rarely, if ever, remain in the locality of their birth. As soon as they reach maturity and can shift for themselves, the old birds, in a great number of instances, drive them off; whilst with some birds the movement is a voluntary one. Another cause which prevents the increase of our resident birds is the occurrence of hard winters. A long-continued frost or heavy fall of snow causes great mortality amongst small birds, of which any one may convince himself by noting the comparative abundance of birds in the beginning and towards the end of winter. The number of resident birds in a spring which follows a hard winter is generally conspicuously below the average.

The general colour of the Robin is olive-brown, shading into buffish brown on the flanks and into greyish white on the centre of the belly; the forehead, lores, ear-coverts, chin, throat, and breast are rich orange-chestnut, the chestnut margined with a few grey feathers on the crown and the sides of the neck. Legs, toes, and claws pale brown; bill and irides black. The male and female birds are similar in colour. After the autumn moult the colour of the breast &c. is richer. Birds of the year scarcely differ from adults; but the young, in nestling-plumage, are spotted, caused by ochraceous centres and nearly black tips to all the smaller feathers of the upper and under parts.



ERITHACUS SUECICA* (*Brehm, nec Temminck*).

ARCTIC BLUE-THROATED ROBIN.

(PLATE 9.)

Motacilla suecica, *Linn. Syst. Nat.* i. p. 336 (1766, *partim*); **et auctorum plurimorum**—(*Selby*), (*Brehm*), (*Blyth*), (*Gould*), (*Sundevall*), (*Jerdon*), (*Newton*), (*Dresser*), &c.
Ficedula suecica (*Linn.*), *Boie, Isis*, 1822, p. 553 (*partim*).
Motacilla cærulecula, *Pall. Zoogr. Rosso-Asiat.* i. p. 480 (1826).
Curruca suecica (*Linn.*), *Selby, Trans. Nat. Hist. Soc. Northumb.* i. p. 255 (1831).
Cyanecula suecica (*Linn.*), *Brehm, Vög. Deutschl.* p. 350 (1831).
Phœnicura suecica (*Linn.*), *Sykes, Proc. Zool. Soc.* 1832, p. 92.
Pandicilla suecica (*Linn.*), *Blyth, Field Naturalist*, i. p. 291 (1833).
Ruticilla cyanecula (*Wolf*), *apud Macgill. Br. B.* ii. p. 300 (1839).
Lusciola suecica (*Linn.*), *Keys. u. Blas. Wirb. Eur.* pp. lviii, 190 (1840, *partim*).
Cyanecula fastuosa, *Less. Rev. Zool.* 1840, p. 226.
Sylvia suecica (*Linn.*), *Nordm. Démid. Voy. Russ. mérid.* iii. p. 135 (1840).
Sylvia cyane (*Pall.*), *apud Eversm. Add. Pall. Zoogr. Rosso-Asiat.* fasc. ii. p. 12 (1841).
Phœnicura suecoides, *Hodgs. MS. Drawings (in the Brit. Mus.) of B. of Nepal, Passeres*, pl. xci. no. 703, *undè*
Calliope suecioides; *Hodgs. Gray's Zool. Misc.* p. 83 (1844).
Cyanecula suecioides, *Hodgs. Gray's Zool. Misc.* p. 83 (1844).
Erithacus suecica (*Linn.*), *Degl. Orn. Eur.* i. p. 513 (1849).
Sylvia cæruligula, *Pall. fide Blyth, Cat. B. Mus. As. Soc.* p. 167 (1849).
Cyanecula cærulecula (*Pall.*), *Bonap. Consp.* i. p. 296 (1850).
Cyanecula dichrosterna (*Pall.*), *fide Cab. Mus. Hein.* i. p. 1 (1850).
Sylvia (Cyanecula) suecica (*Linn.*), var. cærulecula (*Pall.*), *Middend. Reis. Sibir. Zool.* ii. pt. 2, p. 177 (1853).
Niltava fastuosa (*Less.*), *Bonap. Compt. Rend.* xxxviii. p. 34 (1854).
Cyanecula cyane (*Eversm.*), *Bonap. Cat. Parzud.* p. 5 (1856).

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* The earlier ornithologists did not distinguish between the Bluethroat with a white spot on the blue throat, and the Bluethroat with a chestnut spot on the blue throat. Some of them applied the specific name *suecica* to one species, and some of them to the other, whilst a few applied it indifferently to both species. It seems probable that the name was more or less misapplied by Linnæus, Gmelin, Bechstein, Latham, Temminck, Vieillot, Naumann, Koch, Boie, Gould, Keyserling, Blasius, Gray, Bonaparte, Cabanis, Degland, Gerbe, Loche, and some others. Ornithological blunders are soon forgotten; but to avoid the possibility of mistake, it is wisest for the present either to adopt Pallas's name, which, so far as I know, has never been misapplied, or to append an authority to the name which clearly denotes the species intended to be discriminated. It appears that Brehm was the first to distinguish between the two species; but we cannot give him much credit for doing so, because he was not content to make two species, but must needs split them into five. Of the ornithologists who have misapplied the name, perhaps Temminck is the earliest who applied it only to the wrong species.

Luscinia suecica (*Linn.*), *Sundev. Sv. Fogl.* p. 60 (1856).
Cyanecula suecica (*Linn.*), *β.* cærulecula (*Pall.*), *Newt. List B. Eur. Blasius,* p. 10 (1862).
Ruticilla suecica (*Linn.*), *Newt. ed. Yarr. Br. B.* i. p. 321 (1873).
Erithacus cæruleculus (*Pall.*), *Seebohm, Cat. B. Brit. Mus.* v. p. 308 (1881).

The Arctic Bluethroat is a far more eastern and northern bird in its distribution than the White-spotted species (which is essentially a southern and temperate one), and is a summer visitant only to the higher and northern portions of Europe. It was first recorded as a British bird by Mr. Fox, in his 'Synopsis of the Newcastle Museum,' pp. 298, 308, and in the 'Zoological Journal,' iii. p. 497, from a specimen obtained on the Town-Moor of Newcastle-on-Tyne, on May 20th, 1826, by Mr. Thomas Embleton, who presented it to the museum. The second specimen, said to have been killed in Dorsetshire, was recorded by Mr. J. C. Dale, in the 'Naturalist,' ii. p. 275. The next two occurrences are recorded by Yarrell, in his 'British Birds,' i. p. 322—one of a specimen killed near Birmingham, and in the possession of Mr. Plumptre Methuen; the other, a male bird, found dead on the beach at Yarmouth, September 21st, 1841. Mr. Morris also mentions, on the authority of Mr. E. Cole, one shot at Margate, in September 1842; and in September 1844 two specimens, an adult and a bird of the year, were sent, in the flesh, to Yarrell for inspection, by Mr. Gardner, and were said to have been shot in the Isle of Sheppey. An eighth example is in the Strickland collection in the University Museum of Cambridge; but no particulars are known respecting it beyond those on the label, "Britain, 1846." Lord Lilford recorded in the 'Zoologist,' p. 3709, another example, shot about Sept. 15th, 1852, near Whimple, in South Devon. A female, killed at Worthing on May 2nd, 1853, is mentioned by Mr. Stevenson in the 'Zoologist,' p. 3907; and a male bird, killed early in May 1856, near Lowestoft (Zool. p. 5149), is now in Mr. Gurney's collection. Mr. Cecil Smith notices one said to have been taken in Somerset in 1856, and now in the Exeter Museum; and Mr. H. Pratt records in the 'Zoologist,' p. 8281, a male caught at Brighton, on October 1st, 1862, and now in Mr. Borrer's collection. Captain Hadfield gives us a series of notes on a Bluethroat which frequented a locality in the Isle of Wight from February 1865 to September 1867, and recorded in the 'Zoologist' for those years, being part of the time accompanied by a second example. It is doubtful, however, whether this bird was the true *E. suecica*; for in the 'Zoologist' for 1866, p. 172, he states that the bird's breast was "*pure and spotless blue*"—a characteristic of the *E. wolfii* of Brehm. Professor Newton has also been informed by Mr. Gray that a male bird was caught on board a fishing-boat off Aberdeen, on May 16th, 1872. Mr. G. P. Moore mentions, in the 'Zoologist' for 1877, p. 449, a male bird, in the possession of R. C. Fowler, Esq., of Gunton, near

Lowestoft, found, in July of that year, strangled in a fishing-net, on Gunton Denes; and, lastly, Mr. Eagle Clarke has sent me a female bird of the year for examination, which was shot in his presence this autumn on Spurn Point.

The Arctic Blue-throat breeds within the Arctic circle, or in the birch-regions at high elevations of more southerly climes, both in Europe and Asia; in the latter continent it breeds as far south as the Himalayas, and occasionally crosses Behring's Straits into Alaska. The European birds pass through Central and Southern Europe and Palestine on migration, and winter in North Africa as far south as Abyssinia; whilst the Asiatic birds, with the exception of those individuals breeding at high elevations in the south, pass through Turkestan, Mongolia, and North China, and winter in Baluchistan, India and Ceylon, Burma, the Andaman Islands, and South China.

It is only during the periods of migration that ornithologists in temperate Europe have an opportunity of observing the habits of this interesting little bird; for it spends its summer far away in the arctic north, and its winter in Africa. Perhaps no other place of call at which this little songster stays on its annual journey is so favoured with its presence as the little island of Heligoland, to the natives of which it is a well-known and anticipated guest. My friend Gaetke, the veteran ornithologist, writes to me:—"Here, during the month of May, if a cold, dry north wind is not actually blowing, this little bird is without fail a daily visitor; but should the weather be fine, if a gentle east or south-east wind should have been blowing early in the morning, accompanied by fine warm drizzling rain, it is often so numerous that Aenckens and I have frequently each shot from thirty to fifty birds on such a day, picking out only the finest-plumaged males. From the middle of August to the middle of September, whenever the weather is suitable, it is generally even more frequent. At this season of the year they confine themselves almost entirely to the potatoe-fields outside the town, whilst in spring one sees them most frequently hopping about under the gooseberry and currant-bushes in our gardens. They seem, however, to have a special preference for the beds planted thickly with cabbages, just beginning to resprout in spring. They also frequent the dead branches of the so-called 'Throstle-bushes,' as well as shady corners in the fences of the gardens; and sometimes they are even found at the foot of the rocks amongst the fallen stones, or in dark clefts of the cliffs. This charming bird, like the Robin, is a most confiding little creature. When you are at work in the garden, if you only take care to appear as if you were taking no notice of him, he will remain for hours together within twenty paces of you, hopping constantly about with quick steps, at each of the many pauses standing erect with quivering outspread tail raised above the wings, and looking eagerly around with his clear dark eyes. If at that moment the idea enters his little head that you are watching him, he vanishes with long hops as quick as lightning under the bushes or between the vegetables, to reappear again in half a minute with as much confiding trust as ever. Many a time I should have been glad to add such a fine-plumaged bird to my cabinet, but could not find it in my heart to injure a creature which was such charming company and seemed to trust so confidingly to my protection."

During the short summer in the northern regions the Arctic Bluethroat is one of the commonest of birds, and in Sweden is known as the Swedish Mocking-bird. Generally it is shy and retiring, seeking food in the densest thickets and bushes, haunting the marshy grounds sprinkled over with small spruce-fir, dwarf willows, and juniper. But when newly arrived from its winter home, and beginning to sing, it comes more prominently into notice and is far from shy. On its first arrival it often warbles in an undertone so low, that you fancy the sound must be muffled by the thick tangle of branches in which you think the bird is concealed, whilst all the time he is perched on high upon the topmost spray of a young fir, his very conspicuousness causing him to escape detection for the moment. His first attempts at singing are harsh and grating, like the notes of the Sedge-Warbler, or the still harsher ones of the Whitethroat; these are followed by several variations in a louder and rather more melodious tone, repeated over and over again, somewhat in the fashion of a Song-Thrush. After this you might fancy the little songster was trying to mimic the various alarm-notes of all the birds he can remember; the *chiz-zit* of the Wagtail, the *tip-tip-tip* of the Blackbird, and especially the *whit-whit* of the Chaffinch. As he improves in voice, he sings louder and longer, until at last he almost approaches the Nightingale in the richness of the melody that he pours forth. Sometimes he will sing as he flies upwards, descending with expanded wings and tail to alight on the highest bough of some low tree, almost exactly as the Tree-Pipit does in the meadows of our own land. When the females have arrived, there comes at the end of his song the most metallic notes I have ever heard a bird utter. It is a sort of *ting-ting*, resembling the sound produced by striking a suspended bar of steel with another piece of the same metal. The female appears to shun the open far more carefully than her mate; and while he will be perched on a topmost spray, gladdening the whole air around with his varied tuneful melody, she will remain in the undergrowth beneath him, gliding hither and thither, more like a mouse than a bird, through the branches.

The Arctic Bluethroat is a bird of the swamps; if it does not go to the far-off tundras beyond the limit of forest-growth to rear its young, it selects some swampy part of the forest, or some boggy moor where mosquitoes abound when it has to feed its nestlings. The fjelds of

Lapland and the tundras of Siberia are not level. The peat is impervious to water; and there is a constant struggle going on between the rich and rank vegetation which establishes itself there and the water which lies on the flat places and is always running down the slopes when the snow melts. The tundra is seldom smooth like a common, but is generally a cluster of little hummocks or mounds covered over with rushes carices, cloudberry, and other ground fruits, with sometimes a stunted birch or willow scarcely higher than the coarse grass. These hummocks are the favourite breeding-places of the Arctic Bluethroat. I have generally found the nest well concealed in a snug hole on the side of one of these hummocks, just such a place as a Robin would choose in such a locality.

The nest is not unlike that of a Robin. The hole is well filled with dry grass and roots, and at the far end a neat deep cup is formed lined with fine roots and hair. It is almost impossible to find the nest, except by accidentally frightening off the bird, and even then it often takes some time, so carefully is it concealed. The eggs are from five to six in number, and are laid about the middle of June. They are greenish blue, more or less distinctly marbled with pale reddish brown, and are very similar to the eggs of the Nightingale. They may be described as miniature eggs of the Redwing. They measure from ·8 to ·69 inch in length, and from ·56 to ·53 inch in breadth.

The food of the Arctic Bluethroat is partly vegetable and partly animal. A lover of low and swampy districts—marshy grounds studded with willow clumps, and wet meadows, it obtains earth-worms in abundance, also various kinds of insects and their larvæ, its principal food during the breeding-season being undoubtedly mosquitoes. It also eats small seeds of various kinds. Like the Robin, the Redstart, and other nearly allied birds, the Arctic Bluethroat obtains much of its insect food when hovering in the air in a similar manner to the Flycatchers; and when searching amongst withered leaves or moss upon the ground, its actions are almost precisely the same as those of the Robin or the Hedge-Accentor.

The Arctic Bluethroat has the whole of the upper parts uniform brown, except a white or pale buff streak over the eye from the base of the bill backwards, and the tail, which is blackish brown with the basal half bright chestnut, except the two centre feathers, which are uniform brown. The chin, cheeks, throat, and upper breast are metallic cobalt-blue, with a large chestnut spot in the centre of the lower throat; below the blue is a band of black, and below that the chestnut reappears in a broad band across the lower breast, the rest of the underparts being buffish white. Bill black; legs, feet, claws, and irides dark brown. The female is not so showy as the male, simply having a dark-brown band across the chest; but sometimes she attains by age some of his blue and chestnut markings. After the autumn moult the bright plumage is partially hidden by broad margins to the feathers, which, however, are cast in the spring. Males of the year resemble females; and young in nestling plumage have all the small feathers nearly black with buffish centres, palest and most prominent on the belly.

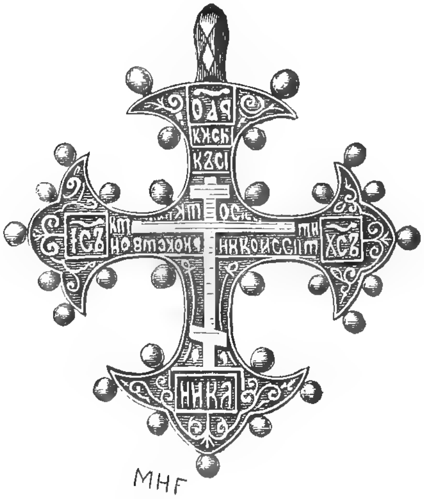
The European Bluethroat (*Erithacus cyaneculus*) is the Southern and Western representative of the Arctic Bluethroat. It has been included in the British list, but on far too slender evidence; and although I have figured the egg of this bird, for the sake of comparison, its claims as a British species must remain in abeyance until more satisfactory evidence is forthcoming. A bird alleged to be of this species was seen in the Isle of Wight (Zoologist, 1866, p. 172); but the evidence is unsatisfactory and meagre. Another specimen is said to have been picked up dead under the telegraph-wires at Seamer, near Scarborough (Zoologist, 1876, p. 4956); as, however, this specimen was a female, and as the adult females of the two species are very often the same in plumage, and immature females are apparently always undistinguishable, it is impossible to recognise the bird as an undoubted European Bluethroat. The third and last recorded instance of the bird's capture in Great Britain was announced by my friend Mr. J. A. Harvie-Brown in the 'Zoologist' for 1881, p. 451. This specimen was obtained from the Isle of May on the 24th of September of that year. I have seen this example; it is a bird of the year, and there is not a shadow of evidence to indicate to which species it belongs.

The European Bluethroat breeds in Central and Western Europe, but becomes rarer during the breeding-season as we trace it eastwards. It is said to pass through Turkestan and Northern Cashmere on migration, and to have been occasionally obtained in India and Persia; but I have never seen an Asiatic skin, and doubt its occurrence in Asia. Great doubt attaches to the specimens of this bird obtained so far to the eastwards as Persia and India; and it is possible that immature birds of the Arctic species have been mistaken for them. The greater number of these birds pass through South Europe on migration, and winter in Palestine and North Africa.

In its habits and mode of nesting, and in its song and call-notes, the European Bluethroat resembles its Arctic ally. Like that bird it is a lover of swampy places, fond of concealment, and creeps in a silent mouse-like manner through the bushes and undergrowth; and its food, so far as I can determine, is also similar. Its nest is placed similarly to that of the preceding species—on the ground under the shelter of a tussock, or at the foot of a small bush; and the materials which compose it are much the same. The eggs of this bird present much the same types, and possess similar variations to those of its northern congener.

I found this species by no means uncommon in the swampy districts near Valkenswaard, in Holland.

The only difference between this and the preceding species is in the colour of the throat-spot, which is pure white. There are three forms of the Blue-throated Robin, the adult males of which, when in full breeding-plumage, may be readily distinguished. First, we have the Northern or Arctic form, with the spot in the centre of the throat red; secondly, the South-European form, with the spot in the centre of the throat pure and silky white; and thirdly, the form of which the throat is uniform blue. The two former of these birds have different breeding-grounds, and quite distinct areas of geographical distribution; but the uniform-blue-throated form is chiefly met with in localities frequented by the Southern or white-spotted form. In the specimens I have examined of this blue-throated form, in which the breast at first sight appeared unspotted blue, I have generally found the bases of the feathers on the throat white. Newton, in his edition of Yarrell's 'British Birds,' asserts that these differences of plumage (especially in the white-spotted and spotless forms) are coexistent with differences in the length of the tarsus; but in an examination of a series of these birds, I find that the measurement of the tarsus is a variable quantity, and of no value in separating the species.



ERITHACUS LUSCINIA.

THE NIGHTINGALE.

(Plate 9.)

Ficedula luscinia, *Briss. Orn.* iii. p. 397 (1760).
Motacilla luscinia, *Linn. Syst. Nat.* i. p. 328 (1766); **et auctorum plurimorum**—*Gmelin, Bechstein, (Latham), (Temminck), (Selby), (Gould), (Bonaparte), (Degland), (Gerbe), (Loche), (Salvadori), (Newton)*, &c.
Sylvia luscinia (*Linn.*), *Scop. Ann. I. Hist. Nat.* p. 154 (1769).
Aedon luscinia (*Linn.*), *Forst. Syn. Cat. Br. B.* p. 53 (1814).
Curruca luscinia (*Linn.*), *Koch, Syst. baier. Zool.* i. p. 154 (1816).
Daulias luscinia (*Linn.*), *Boie, Isis*, 1831, p. 542.
Philomela luscinia (*Linn.*). *Selby, Brit. Orn.* i. p. 206 (1833).
Lusciola luscinia (*Linn.*), *Keys. u. Blas. Wirb. Eur.* pp. lviii, 189 (1840).
Erithacus luscinia (*Linn.*), *Degl. Orn. Eur.* i. p. 499 (1849).
Luscinia vera, *Gray, Hand-l. B.* i. p. 220 (1869).
Luscinia philomela (*Bechst.*), *apud Brehm, Bonaparte, Gray, Cabanis, Gould, Heuglin, Harting*, &c.

The Nightingale is a common summer visitor to all the counties of England, except those in the north and west, being comparatively rare in South Yorkshire, Shropshire, and East Devon, which may be considered the limits of its range in our islands. It has never been recorded from Ireland; and its alleged occurrence in Scotland rests upon very doubtful authority, though it may possibly visit the latter country as an accidental straggler.

It is pretty generally distributed on the continent of Europe during the breeding-season south of Scandinavia and west of Russia, only occurring in the latter country accidentally. It passes through North Africa on migration, a few remain to breed in Algeria; but the majority winter in the interior somewhere south of Abyssinia. In South Sweden and Central Russia our Nightingale is replaced by the Eastern Nightingale (*Erithacus philomela*), a species whose breeding-range extends eastwards into Asia Minor, Northern Turkestan, and South-western Siberia. Westwards its range overlaps that of our bird, occasionally reaching as far as the valley of the Rhine. It is not improbable that this bird has occurred in Great Britain, but its presence has been overlooked. An equally near ally, the Persian Nightingale (*Erithacus golzii*), breeds in the cultivated districts of Turkestan and West Persia, extending its western range as far as the Caucasus. In coloration this species is intermediate between our Nightingale and *E. philomela*, being slightly more olive than the former and slightly more russet than the latter. In its wing-formula it resembles the former species; but may be distinguished from both by its slightly longer bill (·07 to ·06 inch) and much larger tail (3·32 to 2·95 inch).

The Nightingale arrives at its breeding-grounds in the south of England about the middle of April, but not before the latter end of the month or the beginning of May in the most northerly localities. As the male Nightingale sings well in confinement and possesses such rich and varied musical powers, it is sought after eagerly by the bird-catchers, and during the first week or so of its sojourn in England great numbers are caught. But the Nightingale does not bear captivity well; and by far the greater number that are caught die within a short time of their capture. It is said that if a male is caught after having found a mate, he seldom lives in confinement, but pines away. The bird-catchers, therefore, are always on the look-out to entrap their victims the moment they arrive. Birds caught in the autumn seldom live long.

The Nightingale in many of its habits closely resembles the Robin; and the haunts it affects are in many cases very similar. Singularly enough, it is only found in certain localities in England, shunning others which seem in all respects suited to it. The Nightingale is a very skulking bird, frequenting the dense undergrowth, hopping restlessly about the cover, and when alarmed it instantly finds shelter amongst the tangled vegetation. Sometimes in the woods and coppices it is seen flitting across the path; and its harsh croaking call-note, something like the Whitethroat's, may be heard from all parts of the cover. The haunts of the Nightingale are woods and plantations in which the undergrowth is particularly thick and close. Tangled hedgerows and the thickly-wooded banks of streams are also favourite haunts of this bird. In this respect it shows the same preference as the Robin, seeking marshy places where worms and insects, which form its chief food, are found abundantly.

When searching for its food the Nightingale instantly puts you in mind of the Robin. It alights on the ground, looks carefully around, and then commences to turn over the dead leaves in search of worms and grubs. It will then hop daintily along, every moment pausing to listen with head slightly turned aside, and its full dark eye gazing intently at you. Like the Robin, the present species has a habit of repeatedly jerking up its tail, lowering the head, and drooping the wings. Although so fond of concealment, and so shy and timid that it seeks the cover the instant it is alarmed, it may often be seen in the open places in the woods, sometimes by the roadside, or in gardens; but if observed, like the Thrushes, it soon seeks seclusion. When alarmed its note is a low guttural one, and it will repeatedly snap its bill in its extreme anxiety. Its call-note is a long-drawn plaintive *weet*, very similar to that of the Robin. Its voice is heard soon after its arrival; and it sings incessantly from pairing-time in April until the young are hatched in June. From this period its notes are rarely heard; for the bird is too busy bringing up its young to find time to sing; and when they are safely reared, the autumn moult is at hand—a time when no bird is heard to sing. The song of the Nightingale has possibly been overpraised. Its beauties have been the poet's theme for ages; and men have immortalized it who have probably never listened to its strains. Fiction has described the bird as leaning against a thorn, and has thus explained the cause of its singularly melancholy notes. The Nightingale's song nevertheless is not equalled by that of any other bird; and the volume, quality, and variety of its notes are certainly unrivalled. It is impossible in words to convey its delightful strains to the reader; the bird's haunts must be visited, and its sweetness listened to there. The Nightingale does not always sing in the hours of night, as is very popularly believed to be the case; and it may be heard warbling at all hours of the day. Neither is the Nightingale the *only* bird that sings under a starlight sky; the Sedge-Warbler, the Robin, the Thrush, the Cuckoo, the Grasshopper Warbler, and others repeatedly do so. I have heard persons describe in rapturous language the music they have heard at night, which they attributed to the present bird, when the Sedge-Warbler was undoubtedly the musician that had charmed them so much.

The food of the Nightingale is for the most part obtained upon the ground:—worms, that are searched for in the marshy portions of its haunts and under the decaying leaves; ants and their larvæ, and also other insects, many of which it obtains amongst the herbage on the ground or in the decaying timbers found in its marshy haunts. It is also said to be extremely partial to fruit, like most of the small summer birds of passage, and to eat both elder-berries and currants. The young birds were observed by Montagu to be almost entirely fed on small green caterpillars.

It seems that the Nightingale resorts yearly to its old haunts, and, like the Robin, is somewhat pugnacious during the pairing-season, zealously guarding its own little domain from intrusion. The breeding-season commences early in May; and the nest is usually on or near the ground. In the woods the site of the nest is usually amongst the tall rank grass or beneath the low underwood, sometimes in a recess amongst old gnarled roots, and occasionally in ivy several feet from the ground. At other times it is built in the close dense hedgerow-bottoms, and on the banks of a lane amidst the luxuriant summer plants there. Sometimes it is placed in a heap of dead leaves at the foot of a tree. The nest is a large structure loosely put together outside, but neatly finished. It is composed externally of dry grass, sometimes fine flags and rushes, and strips of withered bark, together with dead leaves of the oak, the hawthorn, and the birch, usually the former. The nest-cavity, which is deep and round, is lined with fine grasses, dry rootlets, sometimes with horsehair, and more rarely with vegetable down.

The eggs of the Nightingale are four or five in number, usually the latter, and sometimes as many as six have been found. There appear to be two types of the egg of this bird— a rich olive-brown one, and a bluish green one. The ground-colour of the olive-brown type of egg is bluish green, where it can be seen through the surface-colouring, which is pale reddish brown. The bluish-green type is very faintly mottled with pale reddish brown, the colouring-matter sometimes being collected on one end of the egg like a cap. In some specimens this cap is to be seen on each end, the egg becoming paler round the centre. Some eggs are finely streaked here and there with darker brown. In size they vary from ·93 to ·75 inch in length, and from ·65 to ·57 inch in breadth. But one brood is reared in the year.

The Nightingale passes Gibraltar every season in great numbers on its migrations, arriving about the 12th of April, returning in August and September. This locality appears to be the favourite route of the Nightingale over the sea from its summer to its winter quarters. Still many birds cross the Mediterranean at other points; and Dixon has a note to the effect that a nightingale flew on board the steamer when in mid-sea on the 21st of April, crossing from Marseilles to Phillippeville. This bird was remarkably tame, and alighted on the back of one of the French soldiers lying on the upper deck. The flight of the Nightingale is buoyant and quick; but seldom long sustained, for it usually confines its movements to flitting from bush to bush, and rarely crosses the open.

The Nightingale has the general colour of the upper parts russet-brown, shading into brownish chestnut on the upper tail-coverts and tail. The underparts, including the lores, are buffish white, shading into greyish white on the breast and flanks, and into brownish white on the axillaries and under wing- and tail-coverts. Bill brown above and pale horn-colour below. Legs, feet, and claws brown; irides hazel. The female in the colour of her plumage does not differ from the male. Young in first plumage have pale centres to most of the feathers.

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Genus MONTICOLA.

The genus *Monticola* was established by Boie (Isis, 1822, p. 552), who indicated *M. saxatilis* as the type. It contains the Rock-Thrushes, which may be distinguished from the Ground-Thrushes by the absence of the Geocichline pattern under the wing, from the true Thrushes by never having the throat streaked, and from the Ouzels by their black legs and bills, or, where the legs are black in the Ouzels, by having the bill less than ·9 inch. From the Robins and the Redstarts and the smaller Chats they may be distinguished by their stout bill (·74 or longer). From the larger Chats the fact that the under tail-coverts are blue or chestnut is a sufficient distinction. These generic distinctions are purely artificial. The genera *Monticola, Ruticilla, Saxicola, Erithacus,* and *Myrmecocichla* are all artificial; and the eighty species which they contain really all belong to one genus. I have only retained them out of deference to the practice of ornithologists. The mania for making new genera is a great evil; and I have only retained the pseudo-genera in cases like the present for the sake of convenience, or to avoid change.

The Rock-Thrushes, of which about ten species are known, are confined to the Old World, frequenting the southern half of the Palæarctic Region, the Æthiopian Region, and the Oriental Region, being absent from the Australian Region. Two species range throughout South Europe to North China during the breeding-season. One species is resident in Abyssinia, and three in South Africa. Two species breed in the Himalayas, one of which extends also to West China. One species breeds in South-east Siberia and North-east China, whilst another appears to be confined to East China and Japan. One of the European species has without doubt occurred in our islands, whilst another has been included in the British list on unsatisfactory evidence.

The Rock-Thrushes, although closely allied to the other Thrushes, are still more so both in structure and habits to the Redstarts and Chats. They are in fact nothing more than large Redstarts. They frequent open rocky country, and, like the Redstarts and the Chats, are restless, solitary birds. Most of the Rock-Thrushes are possessed of fair powers of song. Their food consists largely of insects, grubs, and worms, and also, more rarely, of fruit. Their nests are loosely made of rootlets, dry grasses, moss, hair, and feathers, and placed in holes of walls and rocks. Their eggs are from four to six in number, pale greenish blue in colour, very rarely spotted with pale brown.

MONTICOLA SAXATILIS.

THE ROCK-THRUSH.

(PLATE 8.)

Turdus merula saxatilis, *Briss. Orn.* ii. p. 238 (1760).
Turdus saxatilis, *Linn. Syst. Nat.* i. p. 294 (1766); **et auctorum plurimorum**—*Bechstein*, *Wolf*, *Pallas*, *Vieillot*, (*Blyth*), (*Loche*), (*Heuglin*), (*Newton*), (*Dresser*), &c.
Lanius infaustus β. minor, *Gmel. Syst. Nat.* i. p. 310 (1788).
Turdus infaustus (*Gmel.*), *Lath. Ind. Orn.* i. p. 335 (1790).
Saxicola montana, *Koch, Syst. baier. Zool.* i. p. 185 (1816).
Monticola saxatilis (*Linn.*), *Boie, Isis*, 1822, p. 552.
Petrocincla saxatilis (*Linn.*), *Vigors, Zool. Journ.* ii. p. 396 (1826).
Petrocossyphus saxatilis (*Linn.*), *Boie, Isis*, 1826, p. 972.
Sylvia saxatilis (*Linn.*), *Sari, Orn. Tosc.* i. p. 218 (1827).
Saxicola saxatilis (*Linn.*), *Rüpp. Neue Wirb. Vög.* p. 80 (1835).
Petrocichla saxatilis (*Linn.*), *Keys. u. Blas. Wirb. Eur.* pp. 1, 175 (1840).
Orocetes saxatilis (*Linn.*), *Horsf. & Moore, Cat. B. Mus. E.I. Co.* i. p. 189 (1854).
Petrocinla saxatilis (*Linn.*), *Heugl. Syst. Uebers.* p. 29 (1856).
Petrocinchla saxatilis (*Linn.*), *Newt. List B. Eur. Blasius*, p. 9 (1862).

The occurrence of the Rock-Thrush in England is only accidental; but two specimens are known to have been taken, and one more is said to have been identified but not secured. Both these captures were first recorded by Yarrell. In the first instance (19th May, 1843) the bird was obtained by a Mr. Joseph Trigg, who shot it at Therfield in Hertfordshire, while it was sitting on an ash-tree. The second specimen, of which Yarrell omits to state the locality, was shot by a gamekeeper, who only preserved its head and neck, sufficient evidence however to refer it to the present species. A specimen of this bird was also seen and followed for two miles, in June 1852, near Robin Hood's Bay, by a Mr. Bedlington, who, however, failed to secure it (see 'Naturalist,' 1856, p. 21). The Rock-Thrush breeds across Southern Europe as far north as the Hartz Mountains, and eastwards through Persia, Turkestan, and South Siberia, as far as Lake Baikal, South-east Mongolia, and North China. It passes through North Africa on migration, where a few remain to breed, and winters in Senegambia and Abyssinia. Eastwards its winter range extends to the borders of India and into North Burma.

The haunts of the Rock-Thrush embrace some of the wildest of scenes. Its summer home is amongst the rocky gorges of the mountains, in and amongst old ruins, ravines, and rough broken ground strewed with rock-fragments, with here and there a few stunted trees or bushes. On the Parnassus I found this bird inhabiting the wildest districts up to the pine-region. As his name implies, he is a bird of the rocky wilderness, and like the Chats and the Redstarts, prefers such situations to more pastoral districts. His winter home in Africa is in the neighbourhood of the Arab burial-places, on the borders of the arid desert the vast and trackless Sahara, the gorges, embankments, rocky bluffs and ravines, and the oases of the desert.

The Rock-Thrush begins to arrive at its breeding-grounds early in April, most of the birds probably pairing before they quit their winter quarters, as they are usually seen in pairs at the various places they touch at *en route*, and arrive in pairs at their breeding-stations. Upon one occasion Canon Tristram met with this species on migration during one of his wanderings in the Holy Land, and thus describes the strange and interesting sight:—"Of the Rock-Thrushes, *Petrocincla saxatilis,* whose red tail and Redstart-like habits link it most closely with the *Ruticillinæ,* is in most parts of Palestine merely a passing traveller, and tarries but a night. On the 8th of April the whole of Mount Gerizim was covered by a restless flock of these birds, which, at a distance, we took for the Black Redstart, so exactly did they resemble that bird in their actions. They hopped restlessly from rock to rock, never taking a flight of more than a few yards; and in this fashion, in loose order, ranging for perhaps a mile in breadth, they appeared to be steadily proceeding northwards. When the foremost line had reached the valley they took a flight across to the foot of Mount Ebal, over the gardens, and then more leisurely mounted the hill." In some instances the male birds are the first to arrive at their summer haunts, notably in the Alpine districts, sometimes preceding the females a week or more. After pairing they remain amongst the rocks of the lower hills, until the snow has left the mountains and made their nursery ready for them. Many of the habits of the Rock-Thrush closely resemble those of the well-known Wheatear. A shy and wary bird, it flits before the observer, alighting on masses of rock, choosing those situations that afford it a good look-out, and from which danger can be most readily detected. Usually seen in pairs, they continue to flit before the observer; and if he pursues them too closely they retire to some secluded place amongst the rocks, or, by making a long detour, return to the place from which he disturbed them. Now they may be seen on the ground, or perched Chat-like on old walls and ruins, sitting motionless, and starting rapidly off the instant they are alarmed, the rich and beautifully blended plumage of the male contrasting strongly with his mate's more sober dress.

Like the Song-Thrush and the Redwing, the Rock-Thrush is essentially an insectivorous bird, and what few berries it does eat are taken as fruit, just as the Blackcap or the Whitethroat will eat currants or raspberries. The Rock-Thrush is often seen upon the ground in search of insects, or on the small patches of grassy land near streams, seeking for earthworms and snails. Amongst these mountain haunts the bird's fare is a bountiful one. The quantity of insect-life is something wonderful. Grasshoppers of nearly every conceivable shape and variety of size and colour vie with the birds in loudness if not in melody of song; butterflies, both rich and beautiful, float lazily about; and the ground and rocks around are alive with beetles and other forms of insect-life—almost endless in variety, and whose dreamy hum is, in the noon-day heat, almost the only sign of life in these mountain solitudes. The Rock-Thrush is not content with picking his food from the ground or rocks, but often pursues it in the air like the Flycatcher. You see him perched so quietly on a rocky boulder, in a mood of seeming indolence; yet he is ever on the alert; and his sharp eye is scanning the insects around him. Suddenly he launches into the air, and, after a short fluttering butterfly-kind of flight, he snaps at a passing fly and again returns to his perching-place, or goes off to his nest should his young be already hatched. In the late summer months these birds eat the berries of the various shrubs in their haunts, and sometimes visit the gardens for the fruit. But this kind of fare is not sought to a very great extent, the Rock-Thrush being almost as insectivorous as the Chats and Redstarts.

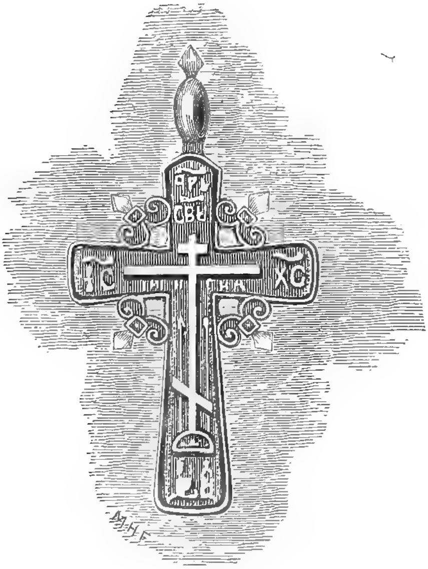
As soon as the birds arrive in their summer home their song commences. In the early morning, during the season of courtship, it may, perhaps, be listened to with the greatest advantage. The bird usually sings from some rocky perch, sometimes from the old walls of ruins, or, more rarely, on the topmost branch of some lonely tree. But he does not always sing when at rest. Like the Redstart, he will ever and anon rise into the air and descend with wings expanded upon his perch again, singing all the time. Sometimes these peculiar aerial motions are continued several times in succession before the bird alights. The song of the Rock-Thrush is, indeed, a sweet and varied one; and in those countries it frequents the bird is in the highest request as a cage-songster, sometimes the most fabulous prices being paid for birds whose musical powers are beyond the ordinary degree of sweetness and variation. Its wild powerful song is equal to that of the Blackcap, and, for variety and tone, comes little short of the ever-changing notes of the "Throstle," and the rich flute-like warblings of the Blackbird. Its call-note is a peculiar piping cry, somewhat similar to that of the Ring-Ouzel.

The nest of the Rock-Thrush, from the peculiar nature of its site, is one of the most difficult to discover. You may search for hours, and turn over tons of rock and stones unsuccessfully, and at last owe its discovery to mere accident. It is usually placed in some convenient rock-crevice, at various heights, sometimes under a mass of rock lying on the ground, sometimes in heaps of stones, and sometimes in holes of ruined buildings;

and, more rarely, in holes in houses and in trees and stumps. Vineyard-walls, holes in mountain-fortresses, and amongst the *débris* carried down the mountain-sides by the melting of the snow, may be also cited as places frequently selected by this bird for its nest. Wherever it is found, however, it is usually well concealed from view, and always in a hole. The bare ground will not unfrequently be chosen, under a bush, or even under a dense overhanging grass-tuft. The nesting-season commences in the latter end of April or beginning of May. The nest is very different in construction from the nests of the true Thrushes, and, as is the case with all hole-building birds, somewhat loosely made. The materials of different nests also vary to a great extent, according to the locality in which they are found. Nests in the more cultivated districts are made of roots, fine and coarse grasses, moss and bents, and lined with hair and feathers. Those taken from more isolated places, the rocky districts high up mountain-sides, are similar in outward construction, rarely lined with hair or feathers, but with fine rootlets and dry grass. Other nests will sometimes be found constructed entirely of roots and withered grass. In examining the nest of this bird, its close resemblance to that of the Redstart or the Wheatear will be noticed. No mud is found in them; they are loosely put together; and this circumstance, coupled with the covered site and the colour of the eggs, still further suggests the bird's nearer affinity to the Chats than to the true Thrushes. The eggs of the Rock-Thrush are four or five in number, of the same beautiful bluish green as those of the Song-Thrush, but slightly paler and rounder; indeed they are almost intermediate between a Song-Thrush's and a Starling's. The markings are confined to a very few faint light-brown specks, usually on the larger end; but the eggs are very often spotless. In the same clutch these peculiarities may be noticed; for sometimes one egg will be faintly marked and the rest spotless. They vary in length from 1·05 to 0·95 inch, and in breadth from ·82 to ·7 inch. Like most hole-building birds, the Rock-Thrush is a very close sitter; and the showily-dressed male assists in incubating the eggs. The young birds are fed by both parents, and are tended for some little time after they leave the nest. They are fed on insects, larvæ, spiders, and grubs. The Rock-Thrush is said to rear two broods in the year. When the nest is approached, especially should it contain young birds, the old birds become very anxious, and exhibit signs of the greatest distress for their helpless offspring.

The male Rock-Thrush is a very handsome bird. Its head, neck, and throat are cobalt-blue, shading into bluish black on the upper back, wing-coverts, and rump; the wings are brown. In the centre of the back is a nearly pure white patch, a few of the feathers being tipped with grey. Except the throat, the entire under surface is rich chestnut, including the tail, the two centre feathers of which are darker than the rest. Bill, legs, and feet black; irides hazel. The female is a speckled brown bird, with a shade of rufous underneath, but the tail is similar to that of the male. After the autumn moult the feathers of both sexes have pale margins, and the white on the back of the male is not so conspicuous. Birds of the year are very similar to the female. The nestling resembles birds of the year, but the spots are larger.

The Blue Rock-Thrush (*Monticola cyanea*) has been said to have been once obtained in Ireland. The bird is now preserved in the Museum of the Royal Dublin Society, and is stated to have been killed in the county of Westmeath, on November 17th, 1866 (see 'Zoologist,' 1870, p. 2019). Although this bird has occurred as a straggler on the island of Heligoland, it is a strictly southern species; and considerable doubt attaches to the example in question, which was examined by Sharpe and Dresser, and pronounced by them to have the appearance of a specimen mounted from a previously prepared skin, and not from a fresh-killed bird.



Genus RUTICILLA.

The genus *Ruticilla* was established by Brehm in 1828, in the 'Isis,' p. 1280. He designated *R. phœnicurus* (the *Ficedula ruticilla* of Brisson) as the type. Most of the birds in this genus have the rump- and the tail-feathers, except the two centre ones, chestnut. The culmen is short, not more than one fourth the length of the tail, and the legs are always black. All the male adult birds, except one species, have black or very dark-blue throats.

There are about thirteen species in the present genus, which are distributed throughout the temperate portion of the Palæarctic Region and the Highlands of the Himalayas, the number of species being greatest in the latter district. Two species breed throughout temperate Europe, one of which is a regular summer migrant to the British Islands, and the other is a regular though rare winter visitant to the south coast of England. One other species has accidentally wandered as far as Heligoland.

The Redstarts form a link between the Thrushes (through the Rock-Thrushes) and the Chats, and are closely connected with the Robins through the Bluethroats. They are birds more or less arboreal in their habits, frequenting bushes and cultivated places, although one or two species affect mountainous localities. They are sprightly, restless birds, feeding chiefly on insects, many of which they secure on the wing. The Redstarts are fair songsters. Their nests are very loosely put together, made of dried grasses, feathers, moss, wool, hair, &c., and usually placed in holes of trees and rocks. Their eggs, from five to eight in number, range from pure white to pale blue, as a rule unspotted, although the eggs of one or two species are sparingly marked with pale brown.

RUTICILLA PHŒNICURUS.

THE REDSTART.

(PLATE 9.)

Ficedula ruticilla, *Briss. Orn.* iii. p. 403 (1766).
Motacilla phœnicurus, *Linn. Syst. Nat.* i. p. 335 (1766); **et auctorum plurimorum** -- (*Temminck*), (*Bonaparte*), (*Gray*), (*Hartlaub*), (*Loche*), (*Gould*), (*Newton*), (*Dresser*), (*Blanford*), &c.
Sylvia phœnicurus (*Linn.*), *Lath. Gen. Syn. Suppl.* i. p. 287 (1787).
Saxicola phœnicurus (*Linn.*), *Koch, Syst. baier. Zool.* i. p. 188 (1816).
Ficedula phœnicurus (*Linn.*), *Boie, Isis,* 1822, p. 553.
Phœnicura muraria, *Swains. & Rich. Faun. Bor.-Amer.* ii. p. 489 (1831).
Ficedula ruticilla, *Eyton, Cat. Brit. B.* p. 10 (1836).
Phœnicura ruticilla (*Eyton*), *Gould, B. Eur.* ii. pl. 95 (1837).
Ruticilla phœnicura (*Linn.*), *Bonap. Comp. List B. Eur. and N. Amer.* p. 15 (1838).
Lusciola phœnicurus (*Linn.*), *Keys. u. Blas. Wirb. Eur.* pp. lviii, 191 (1840).
Erithacus phœnicurus (*Linn.*), *Degl. Orn. Eur.* i. p. 502 (1849).
Luscinia phœnicurus (*Linn.*), *Sundev. Sv. Fogl.* p. 59 (1856).

This handsome little bird is of somewhat local distribution in the British Islands, and can nowhere be said to be of very common occurrence. Its Robin-like appearance, short and pleasing song, bright plumage, and regularity of appearance in the early spring combine to make it a general favourite. It breeds regularly, although locally, in all the counties of England and Wales, but becomes rarer in the west, and is commonest in the south. In Scotland it is found, though still more sparingly and locally, up to Caithness, and occasionally in Shetland; but in the Hebrides it is not known. In Ireland the bird may virtually be said to be absent, a few instances only being on record of its occurrence, apparently merely accidental. The Redstart breeds throughout Central Europe as far north as the Arctic circle. In South Europe it is rarely seen, except on spring and autumn migration, although a few remain to breed at high elevations, usually selecting the pine-regions for this purpose. It winters in North Africa. In Asia its range during the breeding-season extends eastwards as far as the valley of the Yenesay; and the winter home of these Asiatic birds appears to be in Persia.

As the Wheatear is the tenant of the cairns, the rocks, and the ruins of the wilds, in like manner the Redstart may be designated a bird of the ruins and the rocks in the lower, warmer, and more cultivated districts. You will find it in orchards and gardens, about old walls, and in the more open woods and shrubberies. Another favourite haunt of the Redstart is old crumbling ruins, abbeys and castles, on whose battlements and still massive walls, ivy-covered and moss-grown, it delights to sit and chant its short and monotonous song. The Redstart, however, is by no means confined to the vicinity of rocks and ruins. I have often chased him in the pine-forests, where his habit of keeping near the tops of the trees causes him to pass unnoticed by those who are unfamiliar with his simple song. He is very restless, and is seldom secured without a long chase. The Redstart also has his home in wilder places—in the coppices just on the borders of the moorland, the birch-groves, and woods where old and decayed timber is abundant and the ground beneath is strewn with rock-fragments, amongst which the bracken and the briars grow in wild uncurbed luxuriance. Rocky commons, mingled with hawthorn and holly, brambles and briars, and old and disused lanes where walls alternate with hedges are also favourite haunts of the Redstart.

The spring migration of the Redstart is usually performed during the first week in April, sometimes a little earlier, according to the state of the season. About that period of the year the male birds may be noticed in their favourite haunts; for they precede the females a few days, as is the case with most of the British warblers. At this season of the year Redstarts may be often seen in large numbers on the coast, in similar situations to those which the Wheatears choose upon their arrival; and they are often seen hopping about the rocks and cliffs, or frequenting the bushes amongst the sandhills. They are restless and shy, and gradually retire inland to their breeding-places, or go on again still further north to more distant climes to rear their young. The Redstart migrates at night; and hence the birds may be entirely absent one day, but may literally swarm the next. The autumn migrations of the Redstart are not so easy to observe as its spring movements. It departs imperceptibly: its song has been long relinquished; its call-notes are rarely heard; and hence its presence is seldom missed until it has probably long set out on its southern journey. The shyness of the moulting-season seems to be retained; and the fact that the male bird departs some little time before the female, whose sober colours and retiring habits causes her to be often overlooked, also tends to make their autumnal movements difficult of investigation; but during the last week of September, when I was on the island of Heligoland, I had an excellent opportunity of seeing the migration of the Redstart. On the 24th, and again on the 26th, these pretty birds abounded; and among the examples which the boys caught in their traps, I selected a dozen for my collection.

The Redstart is a familiar although a shy bird,—familiar as to its choice of a haunt, being often seen in the same locality as the Robin or the Hedge-Accentor; and shy, rarely allowing a close approach, generally frequenting the tops of lofty trees, but sometimes hiding itself from view in the thickest cover, or flying away as soon as its privacy is intruded upon.

Sometimes, as you wander on, the bird will flit uneasily before you, displaying the rich chestnut of its tail, which is spread out repeatedly, like a fan. A restless little creature, indeed, it is, incessantly flitting about from wall to wall or stump to stump, and repeatedly waving its tail like a rapidly moving fan. These singular tail motions are a very striking peculiarity of this species; and it may be noted that the tail is always moved vertically, never sideways, although it is usually expanded and closed every few beats, giving the bird a very pretty and animated appearance. Upon its arrival at its old haunts the male bird is much less shy than at any other season of the year. He will sometimes advance quite close to you; and for the first week or so of his sojourn here he seems to press himself into notice as much as possible—frequenting the tree-tops, gate-posts, and all other similarly exposed situations. The Redstart flies with a succession of short jerks, not particularly rapid, but extremely irregular. Sometimes, however, in the pairing-season, two male birds will chase each other, and dart like rays of coloured light through the branchy mazes of the woods, all the time uttering a shrill and peculiar guttural note. The Redstart is rarely seen upon the ground: its food is obtained for the most part on walls, rocks, and trees, and in the air; and hence it has no cause to visit the earth.

The Redstart is almost entirely insectivorous—flies, gnats, small butterflies, and various kinds of beetles, caterpillars, and larvæ are its favourite food. It is an adept at catching insects on the wing, like a true Flycatcher, the bird being seen to launch suddenly into the air and often to take several passing insects ere seeking its perch again, all the time performing a rapid fluttering motion of the wings, and displaying its rich contrast of plumage to perfection. You may see it high up the decaying branches of some lofty forest giant, or lower down on a pollard stump or mouldering log, seeking for the various forms of insect life which those places conceal; or you may notice it fluttering before old walls or rocks, or searching the nooks and crannies of the ivied ruins. The bird will sit without movement, except the regular and graceful fanning of the tail. Now a cloud of gnats appear; they are visited and captures made. Now it is a little butterfly flitting lazily along: this capture is a more difficult one; for the insect seems to know its danger and tries to escape its captor, thus causing the bird to prolong its aerial motions for some considerable distance until its quarry is secured. Now the bird is seen to flutter along over the tall grass, seizing the various insects from the grass-stems. It will sometimes take a long sallying flight over the clear still waters of the pool, to regale itself upon the flies which congregate in such dense numbers there. In the late summer, when the smaller garden fruits are ripe, the Redstart, like all its congeners, adopts a partly vegetable diet, and is also known to haunt the fields of growing corn, just before its ripening, to prey upon the soft milky grain, as the Pipits and the Willow-Warblers will do.

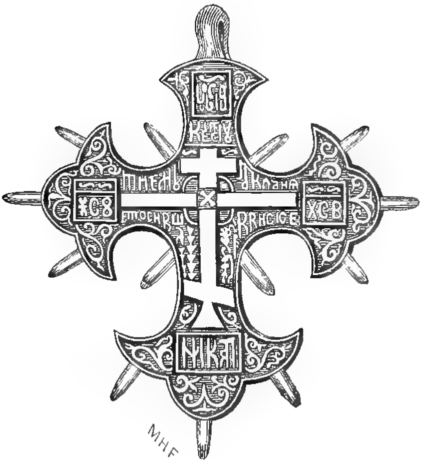
Although the Redstart's song may be a pleasing one, it is not to be compared with the warblings of the Blackcap, or even the Whitethroat, or the sweet little performance of the Willow-Warbler. To hear the Redstart's song to best advantage, a visit should be made to his haunts early in April: and the earlier in the day the better; for the music of all birds is best at, or directly after, sunrise. The song bears a striking resemblance to the loud and varied notes of the Wren; yet it wants their vigour and sprightliness, and is somewhat monotonous. It may well be described as a low, weak, Wren's song, without any of that dashing vivacity which seems to be characteristic of the music of that active little creature. It may also be noticed that the Redstart, directly after its arrival in April, seeks the tree-tops for his orchestra; but as the summer comes on this habit is lost, and the bird warbles from a lower perch, usually in the neighbourhood of his nest. At this time of the year the bird will sing at night, very often supplementing his day-performance with a few strains under a midnight sky. The Redstart sings as he flies. Sometimes he launches into the air, as though bent on insect-capture; but it is merely to warble forth his little unattractive song, and he again returns to his perch. Not unfrequently he will chant his music when flying from one perching-place to another. As the summer passes on his music is heard less frequently and in still more subdued tones, until finally it ceases, a little before the period of the autumnal moult, never more to be renewed until the time of courtship awakens his powers of song anew. In confinement the bird will sing equally well by night as by day, and will readily imitate various songs and notes, like the Starling. The call-notes of the Redstart are varied according to circumstances. Thus its regular call-note is a sharply uttered *weet-tit-tit*, something like a Stonechat's. Its notes in the pairing-season are low guttural warblings, confined to the male alone, and usually uttered as they chase each other through the air; and if you threaten its nest, its alarm-note is peculiarly low and sweet, very much like the call of the Willow-Warbler, a plaintive *whit*.

May is the Redstart's nesting-season. We must not seek its nest amongst the branches, nor yet amidst the brambles or vegetation on the ground, but always in some hole well protected from the wind: holes in walls and trees are, as a rule, selected; but most peculiar sites are sometimes chosen—for example, gate-posts, flower-pots, and crevices under the eaves. Indeed, in this respect the Redstart is almost as famous as the Robin. The Woodpecker, if the nesting-hole is not quite suitable, alters it accordingly, or, if holes be scarce, makes one itself with its strong beak; but the Redstart does no such thing. The graceful birch tree or the mountain-ash very often affords a nesting-hole, whilst in the old walls nesting-sites occur in abundance, sometimes but a few inches in depth, at others several feet, it matters but little. Favourite situations are also amongst old ruins, but rarely at any great height from the ground. The nest itself is a very slovenly piece of workmanship, so loosely made in some cases as to render it impossible to remove it entire from its resting-place. It is made of dry grass, moss, sometimes a little wool, but neatly lined with hair and feathers, and will frequently remain empty for a few days when completed ere the first egg is deposited. The eggs are usually five or six in number, occasionally seven, and even eight. They are a paler blue and more highly polished than those of the Hedge-Accentor; and the shell is far more fragile. They vary in length from ·8 to ·7 inch, and in breadth from ·57 to ·5 inch. You may remove the eggs of the Redstart, and yet she will continue laying, seldom forsaking the nest; indeed Dixon has taken, by way of experiment, as many as twelve eggs consecutively from one nest. The same remarks apply to the Starling, and also to most life-paired birds and those who tenant the same nest each successive season, or build a new one close to that of the preceding year. The young are fed entirely on insects and larvæ. It is most probable that only one brood is reared in the year; but should the first nest prove unfortunate, the birds will renew their attempts to rear a family.

The Redstart cannot easily be confounded with any other British bird. Its head and back are slate-grey; the wings are brown, the forehead white; and the rump, tail (except the two central tail-feathers, which are much darker than the rest), breast, and flanks are rich chestnut, becoming much paler on the belly. A narrow band at the base of the upper mandible, the chin, upper throat, and ear-coverts are rich black. Legs, feet, and claws black; irides dark brown. The female is a brown bird, but has the vent and tail chestnut, although not so brilliant as in the male. Birds of the year are like the female; so, too, are the nestlings, but spotted above and below. After the moult in autumn the male bird closely resembles the female, owing to the broad brown margins of the feathers; but in the spring these margins are cast and the brilliant nuptial dress is assumed without a moult.

In the Caucasus, Asia Minor, and Greece, Ehrenberg's Redstart (*Ruticilla mesoleuca*) occurs, but has been, to a very great extent, confounded with its near although perfectly distinct ally. It is easily distinguished from the Common Redstart by the white patches on the wings, similar to those on the wings of the Black Redstart. Ehrenberg's Redstart has only become known in this country within the last few years. When I brought the first skin over from Asia Minor, no ornithologist would admit it to be more than an accidental variety of our bird; but the late Mr. Verreaux pointed out to me that it was an Eastern form of our Redstart which had been described by Hemprich and Ehrenberg as long ago as 1832. My friend Mr. Danford afterwards procured a large series; and every one admits it now as a good species. In this series, however, the white on the wing varies to such an extent that it seems probable that in Asia Minor the two species interbreed.

Still further to the east, in the Himalayan range, another very nearly allied species (*Ruticilla hodgsoni*) is found, in which the white patch on the secondaries is slightly more developed; but it has the wing more rounded. Further investigation may possibly prove that Ehrenberg's Redstart is an intermediate form between this species and the Common Redstart.



RUTICILLA TITHYS.

BLACK REDSTART.

(Plate 9.)

Ficedula phœnicurus, *Briss. Orn.* iii. p. 409 (1760).
Motacilla phœnicurus β. titys, *Linn. Syst. Nat.* i. p. 335 (1766).
Sylvia tithys, *Scop. Ann.* i. p. 157 (1769)); **et auctorum plurimorum**—*Scopoli, Bechstein, Temminck*, (*Newton*), (*Dresser*), (*Loche*), (*Gray*), (*Harting*), (*Shelley*), &c.
Motacilla atrata, *Gmel. Syst. Nat.* i. p. 988 (1788, *ex Lath.*).
Motacilla erythrourus, *Rafin. Caratt.* p. 6 (1810).
Saxicola tithys (*Scop.*), *Koch, Syst. baier. Zool.* i. p. 186 (1816).
Ruticilla titys (*Scop.*), *Brehm, Vög. Deutschl.* p. 365 (1831).
Phœnicura tithys (*Scop.*), *Gould, B. Eur.* ii. pl. 96 (1837).
Lusciola thitys (*Scop.*), *Keys. u. Blas. Wirb. Eur.* pp. lix, 191 (1840).
Ruticilla cairii, *Gerbe, Dict. Univ. d'Hist. Nat.* xi. p. 259 (1848).
Erithacus tithys (*Scop.*), *Degl. Orn. Eur.* i. p. 504 (1849).
Erithacus cairii (*Gerbe*), *Degl. Orn. Eur.* i. p. 507 (1849).

The Black Redstart is a regular winter visitant to the whole of the south coast of England, and is not uncommon in Cornwall; but there is no positive evidence that it has ever bred in the British Islands. White eggs believed to be those of this species have been repeatedly produced from various British localities; but in no case has the bird been obtained or satisfactorily identified. Sterland asserts that he saw the bird in Sherwood Forest; but the position of the nest in a hedge almost amounts to proof that he was mistaken in his identification.

The geographical distribution during the breeding-season of the Black Redstart is a somewhat peculiar one. In the south it extends from Portugal through Algeria to Palestine. Northwards its range becomes more restricted, and apparently does not extend east of the valleys of the Dneister and the Vistula or north of Holstein. In autumn stragglers have been known to occur in West Russia, Scandinavia, the north of England, Scotland, and Ireland, the Faroes (on the authority of Captain Feilden), and even, it is said, as far as Iceland. North of the Alps it is for the most part a migratory bird, though a few are known to frequent situations where open water is to be found during the winter. South of the Alps it is found throughout the year, its numbers being increased during winter, its range at that season extending as far south as Nubia. In the Caucasus and in Persia it is replaced by *R. ochrura* (the *R. erythroprocta* of Gould), which differs in having the colour of the lower belly bright chestnut instead of buffish brown. This species is intermediate in colour between *R. tithys* and *R. rufiventris,* which is found still further east.

As the Black Redstart very rarely occurs in Norfolk, and has not been recorded from the Lincolnshire coast, it seems probable that the birds which visit our islands come from Holland, where it is exceedingly common, and follow the coast, choosing the shortest passage across the Channel.

In Algeria the Black Redstart appears to be confined during the breeding-season to a few chosen localities in the Djebel Aurès; Dixon met with it in some of the rocky gorges there. He writes:—"It was to be seen in the rapidly drying up beds of the mountain-streams, hopping about from rock to rock, and sometimes perching on the storm-riven decaying stumps of the old juniper trees. It was now and then seen in close company with the charming little Bushchat (*Pratincola moussieri*), and, like that bird, was somewhat shy, and, the moment it became aware that it was observed, glided rapidly amongst the bushes and rocks and was soon lost to view. I did not meet with this bird in the neighbourhood of the Arab houses or near the towns at the base of these mountains; and it seems that what few birds do remain in Algeria to breed select some elevated locality. I saw them at an altitude of nearly 6000 feet, the snow lying thickly in places on the sides of Djebel Mahmel, less than a thousand feet above them."

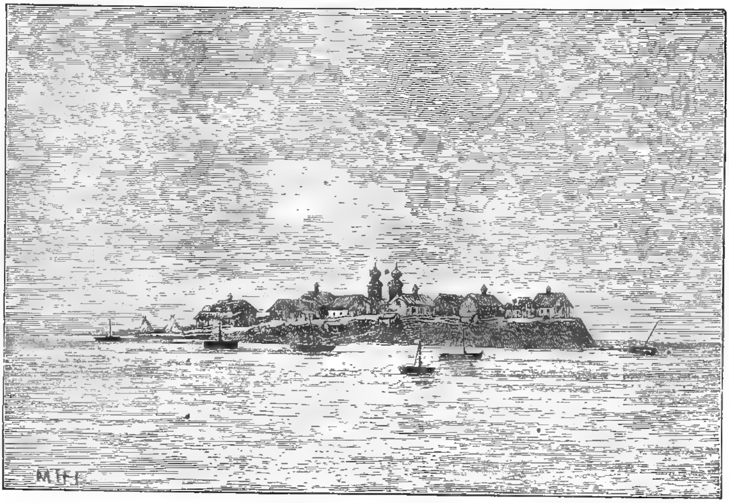
The Black Redstart resembles the Robin very closely in its habits and manner of life. It is an extremely familiar bird, and in most parts of North Germany is common in the gardens and farmyards, perching on the eaves of the houses, or on the apple-trees in the orchard, frequently catching its food in the air like a Flycatcher, and sometimes seeking it on the ground on the newly raked beds. It is very fond of perching on a rail or a stump, and builds its nest, without the slightest attempt at concealment, on the rafters in the farmbuildings, or on a ledge in a summer-house. Its song is very simple, consisting only of three or four melodious notes. Like the Robin it is constantly in the habit of drooping its head and slightly lifting its wing, whilst the tail is suddenly jerked up and half expanded. The Black Redstart is one of the first birds astir in the morning; and occasionally on a hot summer's night, when, from some cause or other, unable to sleep, I have heard its few rich notes through the open window between two and three o'clock in the morning. In spite of its predilection for gardens it is seldom seen in the woods. When it is not found near houses, like the House-Martin, it seeks the rocks. I found it breeding in the rocky valleys in the pine-region of the Parnassus, 4000 feet above the level of the sea; and in winter it is a very common bird on the rocky plateaux on the spurs of the Pyrenees, where it may be constantly seen both on the rocks and on the few stunted bushes which defy the blasts of the western gales from the Bay of Biscay.

The food of the Black Redstart is chiefly composed of insects, caterpillars, and occasionally small garden fruits.

According to Naumann the Black Redstart arrives in South Germany early in March, and in North Germany during the latter half of the same month, the autumn migration taking place throughout the month of October. It breeds early in May. On the 5th of May last I saw two nests, each containing eggs, in a summer-house in the garden of Dr. Blasius at Brunswick. In a shed in the farmyard of Oberamtman Nehrkorn, at Riddagshausen, two miles in the country, several nests were finished and ready for eggs; and on the 14th we took a nest with five eggs. On the 18th a fresh nest had been made in the same place, and one egg had been laid. The nest of the Black Redstart resembles that of the Robin, being a very large loose structure outside, and inside extremely round and neat. This nest measured 9 inches in diameter, and was 3 inches high, principally composed of straw and stalks of plants, with a few twigs and a little moss, some roots, cobwebs, and the flowers of the reed, and a little dried grass. The nest-cavity was not in the centre, and was 2¼ inches in diameter and 1¾ inches deep, very carefully lined with horsehair, and with half a dozen feathers neatly interwoven. On the 6th of May 1873 I took a nest of this bird with four eggs in a recess on the moss-covered walls some yards within the entrance of the celebrated cave in the Parnassus. It was composed principally of green moss lined with goat's hair. Holes in walls and ruins are also favourite situations for the nest. Curious situations are sometimes chosen by this bird in which to build. At Bonn Dr. Sclater and I found one built on a shelf in a compartment of one of the large Rhine bathing-machines, after having watched the bird fly through the window. It is said seldom or never to build in hollow trees. Sachse says that two broods are always reared in a season. The alarm-note of the Black Redstart is very similar to that of the Robin, a loud rapid *tek-tek-tek-tek.*

The usual number of eggs is five; sometimes only four are laid; and six, and even seven have been recorded. The colour is usually pure white; but sometimes there is the faintest tinge of brown, and a clutch in my collection from Altenkirchen shows the faintest possible tinge of bluish green. Dresser describes a clutch, also from Altenkirchen, which were minutely spotted with brown at the large end. The eggs are very finely grained, and the surface polished. In length they vary from ·83 to ·7 inch, and from ·6 to ·56 inch in breadth.

The adult male Black Redstart is a very handsome bird, the general colour being slate-grey, with brown wings margined with white on the outside webs of the secondaries; the two centre tail-feathers are also brown; but the rest of the tail-feathers, as well as the rump and the upper and under tail-coverts, are bright chestnut. The feathers round the bill and the eye, the ear-coverts, the throat, breast, axillaries, and under wing-coverts are black; belly and flanks buffish brown. Legs, claws, and bill black; irides brown. In the female the upper and under tail-coverts and the tail and the white edgings to the secondaries resemble those of the male, but are tinged with brown, the rest of the plumage being sooty brown. Young birds in first plumage have most of the feathers of the upper and underparts barred and tipped with black. Males of the year resemble adult females, in which plumage they have been found breeding, and have been described as a distinct species. It is probable that these birds moult into the adult plumage during their second autumn.



Genus SAXICOLA.

The genus *Saxicola* was established by Bechstein in 1802, in his 'Ornithologisches Taschenbuch,' i. p. 216. He did not indicate any type; and his genus included the Whinchat and the Stonechat; but as these two species were removed in 1816 by Koch in his 'System der baierischen Zoologie,' p. 191, and placed in the genus *Pratincola*, *S. œnanthe* is left as the type of Bechstein's genus. The Chats may be distinguished by their black legs and by the colour of the rump, upper tail-coverts, and the base of the tail, which in typical species are white, whilst in the few aberrant species where these parts are *Ruticilline* in colour the proportion between the culmen and the tail serves to distinguish them: in the Redstarts the tail is more than four times the length of the culmen; in the Chats it is less.

The genus contains about thirty species, and is principally confined to the Æthiopian Region and the southern portion of the Palæarctic Region. Six species are peculiar to South Africa; five more to Nubia and Abyssinia. Six species inhabit North Africa, of which the range of three extends to Palestine and the remaining two to Turkestan. Eight species are European, of which the range of three extends to Persia, one to Turkestan, two to China, and one to the coasts of Greenland and North America. Four species breed only in Persia, and four only in Turkestan. In the British Islands one species is a common summer visitor, whilst two others are very rare stragglers.

The Chats or Wheatears are birds allied to the Bush-Chats on the one hand and the Redstarts on the other. Unlike these birds, however, they frequent open ground, rocky mountain-sides, cultivated plains, and dry and arid deserts. They perch freely on rocks and stones, but are rarely seen in the branches of trees. Their powers of song are somewhat limited. Their food consists largely of worms and insects, the latter sometimes being obtained whilst the bird is hovering in the air. They build loose-made nests of dry grass, hair, feathers, &c., placed in holes either in the ground or in walls or rocks; and their eggs, from five to six in number, are blue, sparingly marked with pale reddish brown.

SAXICOLA ŒNANTHE.

THE WHEATEAR.

(PLATE 9.)

Ficedula vitiflora, *Briss. Orn.* iii. p. 449 (1760).
Ficedula vitiflora grisea, *Briss. Orn.* iii. p. 452 (1760).
Ficedula vitiflora cinerea, *Briss. Orn.* iii. p. 454 (1760).
Motacilla œnanthe, *Linn. Syst. Nat.* i. p. 332 (1766); **et auctorum plurimorum**—(*Bechstein*), (*Wolf*), (*Gould*), (*Gray*), (*Degland*), (*Bonaparte*), (*Cabanis*), (*Sundevall*), (*Newton*), (*Dresser*), &c.
Sylvia œnanthe (*Linn.*), *Lath. Gen. Syn. Suppl.* i. p. 288 (1787).
Motacilla leucorhoa, *Gmel. Syst. Nat.* i. p. 966 (1788, *ex Buff.*).
Sylvia leucorhoa (*Gmel.*), *Lath. Ind. Orn.* p. 531 (1790).
Saxicola œnanthe (*Linn.*), *Bechst. Orn. Taschenb.* i. p. 217 (1802).
Vitiflora œnanthe (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 21 (1816).
Œnanthe vitiflora (*Briss.*), *Forster, Syn. Cat. Brit. B.* p. 54 (1817).
Œnanthe cinerea (*Briss.*), *Vieill. N. Dict. d'Hist. Nat.* xxi. p. 418 (1818).
Motacilla vitiflora (*Briss.*), *Pallas, Zoogr. Rosso-Asiat.* i. p. 472 (1826).
Saxicola rostrata, *Hempr. et Ehr. Symb. Phys. Aves*, fol. *aa* (1833).
Saxicola libanotica, *Hempr. et Ehr. Symb. Phys. Aves*, fol. *bb* (1833).
Saxicola œnanthoides, *Vig. Zool. 'Blossom,'* p. 19 (1839).
Saxicola leucorhoa (*Gmel.*), *Hartl. Orn. W.-Afr.* p. 64 (1857).

This interesting and lively little bird is one of the first to arrive in Britain in early spring, his presence being often noted before the last snow has disappeared. A lively little creature, of conspicuous plumage, and haunting the open ground, the Wheatear is rarely overlooked, and is often the only representative of bird-life in districts both wild and desolate. Although it is pretty generally diffused over the British Islands during the summer, it is certainly a local bird, and its breeding-grounds are almost invariably confined to the wilder districts and tracts of open country. It is much rarer in the south, and parts of the west of England, becoming much more frequent as we go north; whilst in Scotland, even in the outlying Hebrides, the Orkneys, and the Shetlands, the Wheatear is one of the commonest of birds in all the wilder districts. The same remarks will apply to the bird's distribution in Ireland, it being a regular summer visitant, and found commonly in all suitable localities. Outside the British Islands the Wheatear's range is exceeded by few other British Passerine birds. It breeds throughout Central and Northern Europe, going as far north as land is found, and in Southern Europe where the mountains are high enough to allow of the growth of the pine and the birch. Westwards its breeding-range extends over Iceland as far as Greenland and Labrador, and eastwards throughout Northern Siberia, the mountains of Persia and Syria, and beyond Behring's Straits into Alaska. In winter it is found in

North and West Africa; and on the east coast of that continent it has been obtained south of the equator. The Asiatic birds winter in Mongolia, North India, and Persia; and on the American continent it has been found as far south as the Bermudas at that season.

The breeding-grounds and summer haunts of the Wheatear embrace some of the wildest and most romantic portions of our native scenery. On the breezy wastes near the ocean—the low-lying sandy coast or the rough shingly beach and rugged limestone cliffs,—or the solitudes of the upland moors and mountains, where the rocks, the heather, and the lochs are the salient features of the landscape, the Wheatear equally abounds. He is also seen on the summer fallows, and haunts old and disused stone-quarries and sand-pits. Favourite situations for the bird are high up the mountain-sides where the peat is cut, the birds frequenting the clearings and incessantly flitting about the peat-stacks and perching on the turf fences or the cots of the peasants, to whom it is known as the "Stone clatter," or, in Gaelic, the "Clacharan." The Wheatear may also often be seen on the broad tablelands, about old cairns and sheep-folds, and on the road-sides. Even the bare and uninhabited rocky islets of the west of Scotland are usually tenanted by a pair or so of birds, the chief sign of bird-life upon them. The Wheatear is rarely seen in the well-wooded and cultivated districts, except one or two straggling birds, and then usually during the autumnal season of migration.

The first Wheatears are seen in the south of England at the latter end of March; and by the first week in April the remotest districts of the Orkneys and Hebrides are tenanted by them. The annual migrations of the Wheatear are a prominent feature in its history. But these movements can seldom be studied except on the coast; for by the time the birds have reached their more inland haunts, they have dispersed themselves. In the same manner the autumnal movements are made, and the vast gatherings of this bird are only seen on the sea-shore, where it appears that they finally congregate ere taking their departure for their winter-quarters. Like most birds, the Wheatear performs its migrations in the night, and often arrives on our coasts long before daybreak. From early August until the middle of September, Wheatears are seen in vast numbers on the Downs of Sussex, for the greater part young birds reared in the north and now passing southwards on their autumnal journey. Being at this season excessively fat and rich in flavour, they are subject to an incessant persecution. The birds are snared in great quantities by the shepherds whose flocks are pastured on the open downs. But the Wheatear does not now occur so plentifully as formerly. The decrease in their numbers is probably less owing to this incessant persecution than to the destruction of their favourite breeding-grounds, which are yearly, to such a large extent, placed under cultivation.

In nine cases out of ten the observer will first make acquaintance with the Wheatear when the bird is perched on some wall, rock, or other little eminence. There is no mistaking him—his grey, black, and white plumage, and his neat slender form and monotonous note, making doubt impossible, as he sits eying you suspiciously and incessantly fanning with his tail. His mate also in her more sombre garb is not far away, and sits watching your actions. Should you approach them too closely, they fly a little distance before you and again alight on a rock or piece of turf, retreating as you advance, or making a long detour to their old perching-place, which is usually close to the nest. Its flight is usually a low one and taken by short starts; and the moment it alights its tail is jerked several times after the manner of the Wagtails. Although a wary bird, still it is by no means a shy one, and often allows a close approach, the more especially should you happen to be near its nest. The Wheatear has a peculiar habit of perching on old walls: it will flit before you incessantly, dipping behind the wall on the opposite side and again appearing a little distance away, to repeat the manœuvres as you again approach it. To a certain extent the Wheatear is partial to moist situations, and may often be seen standing or wading in the little pools. Although the bird does not, as a rule, perch amongst the branches or twigs of shrubs and trees, it may frequently be seen on the summit of some tall tuft of heather delicately poised, and seemingly balancing itself by its incessant and rapid beats of the tail, giving it a very pretty appearance.

The food of the Wheatear is composed of insects, grubs, worms, beetles, and small snails. It may often be seen hopping about with great celerity on the little open patches of turf or marshy places in search of this food, and it sometimes pursues insects in the air like the Flycatcher. Choosing a favourite perching-place—some wall or turf fence, block of peat or rock—it will sit quietly like the Flycatcher, occasionally uttering its sharp call-note and incessantly fanning with its tail. An insect flies past, and the bird hurriedly quits its perch and secures it, and again returns to its old station, having displayed the striking colours of its plumage and its airy butterfly-like flight to perfection. The Wheatear may also often be seen exploring turf fences and old walls—fluttering before them, clinging to them, and taking the various larvæ that find concealment among the crevices. Again, the droppings of the cattle and sheep on the moors and upland pastures are explored for little beetles and grubs; and in the late summer, when the moorland fruits are ripe, the birds subsist partly on them—a habit common to all, or nearly all, insectivorous birds in the fruit-season.

The love-notes of the Wheatear form a short but pleasing song; and the more particularly are we apt to view his performance with favour, because it generally greets the ear in wild and lonely places. It is uttered shortly after the bird's arrival here, either when the little songster is perched on a stone or a fence, or when fluttering in the air. Sometimes he begins his warbling notes on his perch, accompanying them with graceful motions of the wings, and finally launching into the air to complete his song, the aerial flutterings seeming to give his performance an additional vigour. Dixon has seen "two Wheatears in the air together, buffeting each other, and singing lustily all the time with all the sweetness that love-rivalry inspires." Its song appears to be suspended early in the summer, but is not unfrequently resumed in autumn. Their call-notes bear some resemblance to the syllables *chick-chack-chack*, and have a singularly piercing sound, almost like the noise produced by striking two small pebbles together, which circumstance, and the bird's love for stony places, have gained for them their Gaelic name, signifying the "little mason."

As the male birds precede the females a few days, and when paired do not commence nest-building at once, it is usually the middle of April, sometimes later, ere the nest is in course of construction. The nest of the Wheatear, from the peculiar nature of the place chosen for its site, is extremely difficult to find. Far under a piece of rock, or in a crevice of a huge boulder, not unfrequently in the holes of walls, or under a convenient earth clod on the fallow are the usual situations chosen. It will, when nesting on the sandy downs, take possession of a deserted rabbit-burrow, or other suitable hole in the sandy soil, where it safely rears its young, but never, so far as is known, excavates a hole for itself. Two more favourite nesting-sites may be noticed. One of them is amongst the stones of cairns, or even the heaps of stones lying on a pebbly shore, just above high-water mark, and on the same portion of the beach on which the Oyster-catcher rears its young. The other situation is rather a novel one. On the desolate moors, when the peat is cut for firing-purposes, the Wheatear, as previously noted, is a common bird. The peat-blocks when dry are piled up in stacks to be used as occasion demands; and in amongst the crevices of these peat-stacks the bird finds a favourite nesting-place. The nest is placed at various distances from the opening that admits the parent birds; and sometimes entrance to the nest is made by several ways. Sometimes it is close to the opening of the hole; at others, especially should it be in a stone heap or amongst rocks, it may be several feet from the place at which the birds enter. It is a simple little structure, loosely put together, and made of dry grass, occasionally a few rootlets and moss, and lined with a little hair or feathers, sometimes both, according to the locality in which the nest is made. Thus, when the nest is near the shore or close to the ocean itself, a few stray Gull-feathers will often be found; and should the birds be nesting near rabbit-warrens, a little fur of that animal will usually be mixed with the other materials; while, yet again, on the upland sheep-pastures, wool very frequently forms the lining of the nest, the bird utilizing those materials which its haunts supply. During the whole nesting-season, from the time the first bit of nest-material is laid, the old birds are excessively wary, and rarely betray the exact site of their nest. Although the birds may frequent its locality, be incessantly seen on one old stone-heap or peat-stack, telling you plainly by their actions that their treasure is there, it is only the most careful watching and patience combined that will cause the birds to reveal their nesting-hole; and to search for the nest by turning over the stones or peat is a task far more likely to lead to failure than success.

The eggs of the Wheatear are from four to seven in number; but six seems the average clutch. They are pale greenish blue, elongated in form, and usually spotless. Occasionally, however, they are found with markings upon them, usually confined to a few faint purplish specks on the larger end, sometimes so indistinct and fine as to be scarcely perceptible, unless examined closely. The eggs vary in length from ·95 to ·79 inch, and in breadth from ·65 to ·6 inch.

The young birds are tended by their parents for some considerable time after leaving the nest; and when an intruder happens to disturb a family-party, their actions are full of interest. The young birds, not so strong on the wing as their parents, and more confiding, alight close to the observer; and the old birds fly at a considerable height in the air in circles round his head, all the time uttering a short plaintive note. Sometimes, when suddenly alarmed, a brood of young Wheatears will scatter and hide themselves, taking refuge under the herbage or in holes of walls and rocks; but this usually happens when they are not sufficiently matured to trust to their wings to convey them out of danger.

Although the Wheatear's colours are somewhat chaste, still their bold contrast, and the manner in which they are distributed, make the bird a very pretty one. In summer the male bird's upper plumage is slaty grey, with white rump and black and white tail; from the bill to the eye and over the entire ear-coverts is a black band, surmounted by an eye-stripe of white; the wings are black and dark brown; and the whole under surface of the body is buff, deepest on the throat and breast; legs, bill, and feet black; irides dark brown. The female bird is sandy brown, darkest above; and the wings and tail are similar to those of the male. Young birds are like the female, but are spotted both above and below. After the moult in autumn the male and female are almost alike; for the pale buff margins to the feathers of the former hide the slate-grey portions of the feather, and the underparts are darker. As the winter passes on these buff margins apparently die and drop off, whilst the rest of the feather seems to acquire new life and an additional intensity of colour, so that without a second moult they appear in early spring in full nuptial dress.

The fact that there are two races of Wheatears has frequently been noticed. Some weeks after the arrival of the typical birds a larger and buffer race is reported to arrive on our shores, and to pass northwards on migration. Some ornithologists think that the later arrivals are the young of the previous year, which retain more of their autumn plumage in the spring than older birds do; whilst it has been suggested that they are the Wheatears which breed in Greenland, passing through on migration *viâ* the Shetland Islands and Iceland, and which are somewhat larger and buffer than our birds, and almost constitute a distinct local race.

The Wheatear has no very near ally; and the male is not likely to be confused with any other species of Chat. The female may be distinguished from *S. isabellina* and the female of *S. deserti* by having less black on the tail. The black on the terminal portion of the tail-feathers (except the two centre ones) occupies less than one third of the length of the feather in *S. œnanthe,* whilst in the other two species it occupies more than one third.

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SAXICOLA DESERTI.

DESERT-WHEATEAR.

(Plate 9.)

Saxicola stapazina (*Linn.*), *apud Licht. Eversm. Reis. Buchara*, p. 128 (1823).
Saxicola deserti, *Temm. Pl. Col.* pl. 359. fig. 2 (1825); et auctorum plurimorum—
  Gray, *Bonaparte*, *Cabanis*, *Heuglin*, *Jerdon*, *Dresser*, &c.
Saxicola isabellina, *Rüpp. apud Temm. Pl. Col.* pl. 472. fig. 1 (1829).
Saxicola pallida, *Rüpp. Neue Wirb. Vög.* p. 80 (1835).
Saxicola atrogularis, *Blyth*, *Journ. As. Soc. Beng.* xvi. p. 131 (1847).
Saxicola salina, *Eversm. Bull. Soc. Mosc.* xxiii. pt. 2, p. 567, pl. viii. fig. 2 (1850).
Saxicola gutturalis, *Licht. Nomencl. Av.* p. 35 (1854).
Saxicola homochroa, *Tristram*, *Ibis*, 1859, p. 59.
Saxicola albomarginata, *Salvad. Atti Soc. Tor.* p. 507 (1870).

The claim of the Desert-Chat to a place in the British fauna rests upon the capture of a single specimen. This bird was obtained on the 26th of November 1880, near Stirling; and its occurrence was recorded by Mr. J. Dalgleish in the 'Transactions of the Royal Physical Society' for the following year. It was killed by a Mr. Watt, gamekeeper to Lord Balfour, of Burleigh, whilst sitting on a stone in a piece of moorland at the side of Gartmorn Dam, on the property of the Earl of Zetland, near Alloa. It eventually came into the possession of Mr. J. Taylor of Alloa, who, struck by its unusually late appearance and different markings from those of the Common Wheatear, sent it to Mr. Dagleish. This gentleman kindly forwarded it for exhibition at the first April meeting of the Zoological Society last year, when I had an opportunity of examining it. It is a male in autumn plumage. Although ten days elapsed ere it was preserved, it has been mounted very successfully. The contents of the stomach consisted of small flies. To the European fauna the claim of the Desert-Chat is equally slight. It rests upon two specimens obtained on the ornithologically famous little island of Heligoland, which are now in the possession of Mr. Gaetke. One of these birds is a male, with black throat, in autumn plumage, captured on the 26th of October 1856; the other a female, without the black throat, also in autumn plumage, taken on the 4th of October in the following year. The true home of this interesting little bird is, as its name implies, dry and sandy regions. Although thus comparatively an unknown bird north of the Mediterranean, it has nevertheless a very wide and extensive range. It is a resident wherever the country is suitable to its habits, from the trackless wastes of the Algerian Sahara eastwards to the plains of India. It is found in Egypt, Nubia, Palestine, Arabia, and the highlands of Southern Persia, occasionally wandering into Abysinnia during the winter. Still further to the north and east it breeds on the plateaux of Turkestan, at varying elevations from 1000 to 12,300 feet above the level of the sea. The winter-quarters of these birds are in Baluchistan, Scinde, and the North-west Provinces of India.

The Desert-Chat is an inhabitant of those arid regions that appear, at first sight, to be utterly incapable of supporting life of any description—dreary trackless wastes of sand and rocks, devoid of trees and shrubs, whose sameness is only relieved by the variety of their physical aspect. But, "with all its monotony," writes Canon Tristram (Ibis, 1859, p. 277), "the Desert has its varieties. One day you laboriously pick your steps among bare rocks, now sharp enough to wound the tough sole of your camel, now so slippery that the Arab can scarce make good his footing. Another day you plunge for miles knee-deep in loose suffocating sand-drifts, ever changing and threatening to bury you when you halt. Sometimes a hard pebbly surface permits a canter for hours over the level plain amidst dwarf, leafless, dust-coloured shrubs. Perhaps, on surmounting a ridge, the mirage of a vast lake glittering in the sunshine excites both the horse and his rider. On, on, gallops the wiry little steed over sand hard and crisp, and coated with a delicate crust of saltpetre, the deposit of the water, which at rare intervals has accumulated there, and formed the Chotts and Sebkhas of the Desert." Here, in such dreary solitudes, the little Desert-Chat may be seen hopping restlessly amongst the sand, or, when alarmed, flying off to some considerable distance out of danger and away from intrusion. It is often seen sitting quietly on the edge of the drifts, and, as their crumbling sides give way, appears to search for its sustenance amongst the falling sand.

The habits of this bird appear much to resemble those of the Common Wheatear. It possesses the same characteristic drooping flight, and, as in the well-known bird of our own islands, its tail is ever in jerking motion, accompanied by a slight shaking of the wings. Sometimes it will perch on a little stunted bush in the desert, or on the banks of fields or mud-walls of gardens, and more frequently on a stone. Here it utters its short and pleasing song, which is said to be given forth both in the summer and winter months. In the rainy season they collect in small flocks, and wander about the country in company with allied species.

The food of the Desert-Wheatear is, like that of other Chats, composed of small insects, picked up amongst the sand or, at times, when fluttering in the air; and Messrs. Dickson and Ross also record it as feeding on ants.

Of the habits of the Desert-Chat during the breeding-season but little is known. Its nest is said, by ornithologists who have met with it, to resemble that of the Black-throated Chat, and is placed on the ground, sometimes in the shelter of a bush or in a fissure of the rocks, or not unfrequently in the walls of wells. Canon Tristram also reports it as building its nest in burrows. Eggs of this bird are very rare in collections. They closely resemble those of the Black-throated Chat, but are not so brightly coloured, and the pale liver-coloured spots are larger. They are light greenish blue in ground-colour, spotted with liver-brown of varying degrees of intensity, usually in a zone round the larger end. They measure ·77 inch in length and ·49 inch in breadth.

The general colour of the upper plumage of a male in breeding-dress is buff, richest on the lower back and dullest on the head, and shading into pure white on the rump and upper tail-coverts. The cheeks, throat, and sides of the neck are black; the eye-stripes, which meet over the bill and extend to the nape, are dull white. Wing and wing-coverts nearly black, with obscure pale tips; tail black, white at the base. The underparts are white, washed with pale buff on the breast and flanks; the under wing-coverts are white, and the axillaries are black, tipped with white. Bill, legs, feet, and claws black; irides dark brown. The female, in breeding-plumage, has the upper parts duller and greyer than in the male; the eye-stripes are scarcely visible, and the rump and upper tail-coverts are washed with rufous. On the underparts the black throat is absent, the whole under surface is buff, and the wings are brown. After the autumn moult, but little change is visible in either sex; but males of the year have the black feathers of the throat and wings margined with buff. Young, in first plumage, are like the young of other Chats, and have pale centres to the feathers of both upper and under parts, except on the rump and belly. The females of the Desert-Chat very closely resemble an allied species, the Isabelline Chat (*S. isabellina*), but they are always distinguishable by their small feet.

It has frequently been observed by ornithologists that the proportion of birds of this species obtained in the female plumage is very small compared with those obtained in the male plumage. Mr. Gurney estimates the proportion in Algeria to be about one of the former to eight of the latter. It is therefore very possible that the female birds assume the plumage of the male, but gain it later in life, as is the case with many other birds. Careful sexing of specimens by collectors would, however, place the matter beyond all doubt.

SAXICOLA STAPAZINA (*Vieillot, nec Dresser*).

THE BLACK-THROATED CHAT.

(PLATE 9.)

Ficedula vitiflora rufa (♂ *nec* ♀), *Briss. Orn.* iii. p. 459 (1760).

Muscicapa melanoleuca, *Güld. Nov. Com. Petr.* xix. p. 468, pl. xv. (1775, *Western form*).

Motacilla stapazina (*Linn.*)* (♂ *nec* ♀), *apud Gmel. Syst. Nat.* i. p. 966 (1788); **et auctorum plurimorum**—(*Temminck*), (*Meyer*), (*Gould*), (*Keyserling*), (*Blasius*), (*Nordmann*), (*Rüppell*), (*Degland*), (*Gerbe*), (*Bonaparte*), (*Cabanis*), (*Heuglin*), (*Tristram*), (*Lindermeyer*), (*Newton*), (*Filippi*), (*Doderlein*), (*Gray*), (*Fritsch*), (*Salvadori*), (*Gould*), (*Jaubert*), (*Loche*), (*Irby*), &c., &c., &c., *nec Dresser, nec Blanford.*

Sylvia stapazina (*Linn.*) (♂ *nec* ♀), *apud Lath. Ind. Orn.* ii. p. 530 (1790).

Vitiflora rufa (♂ *nec* ♀), *Steph. Shaw's Gen. Zool.* x. p. 569 (1817).

Œnanthe stapazina (*Linn.*), *apud Vieill. N. Dict. d'Hist. Nat.* xxi. p. 425 (1818).

Saxicola stapazina (*Linn.*), *apud Temm. Man. d'Orn.* i. p. 239 (1820).

Vitiflora stapazina (*Linn.*), *apud Boie, Isis*, 1822, p. 552.

Saxicola xanthomelæna, *Hempr. et Ehr. Symb. Phys., Aves*, fol. *aa* (1833, *autumn plumage of Eastern form*).

Saxicola eurymelæna, *Hempr. et Ehr. Symb. Phys., Aves*, fol. *bb* (1833, *summer plumage of Eastern form*).

Saxicola albicilla, *von Müll. Naumannia*, 1851, p. 28 (*Eastern form*).

Saxicola rufa (*Brehm*), *Blanf. & Dresser, Proc. Zool. Soc.* 1874, p. 221 (*Western form*).

Saxicola melanoleuca (*Güld.*), *Blanf. & Dresser, Proc. Zool. Soc.* 1874, p. 222 (*Western form*).

The Black-throated Chat is divided into two forms, which have been specifically separated by Brehm, Blanford, and Dresser. Although the difference between them is so slight, yet, as their geographical distribution coincides with it, it is best, perhaps, to afford them subspecific rank, and regard them as imperfectly segregated subspecies or varieties. The one form, *Saxicola stapazina,* breeds in the south of France, Spain, Western Algiers, and Morocco, and winters in Western Africa; the other, *Saxicola stapazina,* var. *melanoleuca,* breeds in Greece, South Russia, Asia Minor, Palestine, and South Persia, passes through Egypt and Nubia on migration, and probably winters in Central Africa.

One would naturally expect to find a bird breeding in Western Europe occasionally straggling to the British Islands; but it was a specimen of the Eastern race that paid our shores its hurried and fatal visit. It is worthy of remark that on Heligoland far more stragglers from South-eastern Europe than from South-western Europe occur. Its capture was first recorded in 'Science Gossip' for October 1878, by Mr. R. Davenport, of Bury, Lancashire, who writes:—"It is a pleasing duty to me to record the taking of a very beautiful specimen of what I consider an exceedingly rare bird in our neighbourhood (*Saxicola stapazina*). The specimen was shot by a friend of mine, about the middle of May this year, on the margin of the Bury and Radcliffe Reservoir; and though much mangled with number-6 shot, it has been very well mounted indeed by my friend Johnson, of Prestwick. Considering the condition it was in from being killed with such large shot, I really doubted at one time whether it could be mounted; however, it has been; and a valuable addition to our list of birds it is." I had an opportunity of examining this specimen when it was exhibited at the second November meeting of the Zoological Society in 1878. It appeared to be an adult in full plumage. At the following meeting of the Society (P. Z. S. 1878, p. 977), Mr. Sclater read a letter with enclosures from Mr. R. Davenport, of Bury, fully confirming the capture of this interesting bird. It was shot by Mr. David Page, of Bury, on or about the 8th of May, 1875, whilst sitting on the ridge of the out-buildings belonging to the Bury Angling Association near the reservoir. It was taken in the flesh to Mr. Wright Johnson, of Prestwick, to be mounted; and by him the sex was determined, by dissection, to be a male.

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* The *Motacilla stapazina* of Linnæus is undoubtedly the Eared Chat, *S. aurita* (without the black throat), though there cannot be any reasonable doubt that Linnæus considered the latter species the female of the bird which has generally been called *S. stapazina,* inasmuch as he refers to Brisson and Edwards, who both asserted this to be the case. According to the British-Association rules, Linnæus's name must stand for the Eared Chat, or lapse altogether for want of clear definition.

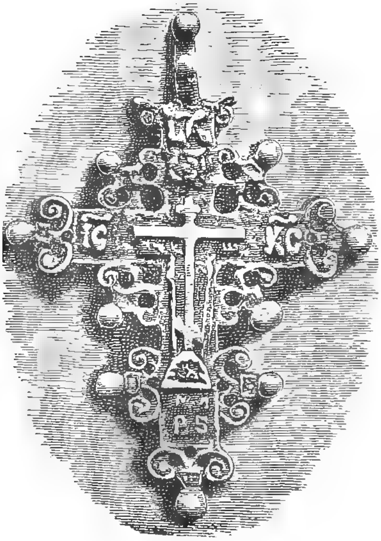
The Black-throated Chat and its ally, the Black-eared Chat, are two of the commonest birds in Greece and Asia Minor; and I am not exaggerating when I say that I have thrown away hundreds of their eggs which the Greek peasant boys have brought me, because it was absolutely impossible to identify the species unless they caught the bird on the nest, which they were very clever in doing. They are both summer birds of passage to Asia Minor, arriving there about the third week in March. They evidently lose no time in pairing, and set about building their nests soon after their arrival, for when I crossed the mountains behind Smyrna on the 2nd of June they appeared all to have young. They were especially abundant on the edge of the cultivated ground between the rocky cliffs and the vine-yards. The weather was so hot that on our arrival at Nymphi we did not do much climbing, but preferred to skirt the base of the mountains just high enough to catch a little of the sea-breeze, which fortunately sets in towards the land soon after noon and slightly alleviates the heat of the broiling sun overhead. This sort of borderland is half rock and half jungle, with here and there an old olive tree or a small cluster of pines. On the bushes and the luxuriant, though somewhat parched, herbs that towered up above the vegetation at their feet, the Black-throated Chat was a very conspicuous object. The contrast of the black, white, and buff was very handsome as the bird sat perched on the topmost twig of a bush, jerking its tail up and down as it loudly protested against our intrusion on its home. Most of the birds we saw had insects in their mouths, and were evidently anxious to feed their young, but were afraid to do so until we had retired. In the first week in May the following year I was in the Parnassus and found the Black-throated Chat breeding abundantly in the rocky slopes between the pine-region and the region of the olive and vine, about three thousand feet above the level of the sea. In this district of grass and rocks every hundred yards brought us to a pair of either the Black-throated or Black-eared Chats, and I obtained several nests on which the females were caught. The nests were usually in the grass in some rock-sheltered crevice, and were loosely made outside of moss and grass, but rather neatly lined with roots and goat's hair. The number of eggs was usually five, but sometimes only four. In their habits these Chats scarcely differ from the Wheatear; they are usually detected on a rock, and are shy enough, except when they have young. Their song is simple but pleasing, and resembles that of our Wheatear.

The eggs of the Black-throated Chat vary in ground-colour from pale to dark bluish green, spotted with reddish brown of different shades. In some specimens the spots are dark (almost liver-) brown and sharply defined; in others they are pale, many of them confluent. As a rule, the markings are confined to the large end of the egg, where they usually form a zone; but sometimes they are irregularly dispersed over the entire surface. Some eggs are almost spotless, whilst others have an indistinct band of very pale spots at the large end. They measure from ·8 to ·7 inch in length and from ·62 to ·56 inch in breadth.

In the male the crown, back, rump, upper tail-coverts, breast, and the rest of the underparts, except the throat, are white; the throat and the sides of the head, extending slightly above the eye, the wings, and upper and under wing-coverts are jet-black; two central tail-feathers black, except at the base, which is white; outside tail-feathers white, broadly terminated with black, the black tips to the remainder being narrower and generally quite obsolete on several. Bill black; irides brown; legs, feet, and claws black. In the female the general colour of the upper parts is almost uniform brown, darker on the wings and darkest on the tail; the rump and the white on the tail-feathers are the same as in the male; the feathers of the throat are buff, showing half-concealed dark bases. Breast buff, shading into buffish white on the rest of the underparts except the axillaries and under wing-coverts, which are dark brown. It is not known that any change in the colour of the plumage is produced by the autumn moult. Birds of the year have the whole of the white feathers (except those of the rump, upper tail-coverts, and tail) suffused with buff, the wing-coverts and innermost secondaries broadly edged with buff, the quills narrowly tipped with buff, and the tail-feathers narrowly tipped with white. Young in first plumage resemble the female of the year, but have obscure pale centres and dark terminal bars to the feathers of the throat, breast, crown, and back.

The Western form of the Black-throated Chat differs in having the black on the throat not extending beyond the upper throat; it is also more constantly suffused with buff on the back and breast. Intermediate forms also occur; and examples from Spain, in which the black on the throat is more extended than usual, are indistinguishable from examples from Asia Minor, in which the black on the throat is less extended than usual. There is no difference in size.

A nearly allied, but distinct species, the Euphrates Pied Chat (*S. finschii*), has the upper breast as well as the throat black. This species breeds in the rocky hills of the Caucasus, Eastern Asia Minor, and Persia. It passes through Egypt on migration, and is found in Nubia in winter.



Genus PRATINCOLA.

The Bushchats were included by Bechstein in his genus *Saxicola*, but were removed by Koch when he subdivided this genus and established the genus *Pratincola* for their reception, in 1816, in his 'System der baierischen Zoologie,' p. 190. Koch did not indicate any type; but he placed the Whinchat first upon his list; and this bird has, by common consent, been regarded as such.

The Bushchats are a small group of birds allied in some respects to the Chats, and in others to the Flycatchers. The bill is shorter and broader than that of the Chats, but not so broad as that of the Flycatchers. The tarsus is comparatively short, and the plumage much more fluffy and loose. The rictal bristles are large and well developed.

Sharpe, in his 'Catalogue of the Birds in the British Museum' (iv. p. 178), enumerates thirteen species which are distributed over the Palæarctic, Æthiopian, and Oriental Regions, but absent from the Australian Region. Three species are found in Europe, and the occurrence of a fourth is somewhat doubtful. One is a resident and one a regular summer migrant to the British Islands.

The Bushchats are more arboreal in their habits than the Chats, frequenting bushes, low trees, and tall herbage. Like the Flycatchers, they obtain much of their food on the wing. They feed principally on insects and worms. They are possessed of considerable powers of song. They build loosely made nests, open, and composed of grasses, hairs, feathers, moss, &c., placing them amongst tall herbage and under bushes. Their eggs, from four to six in number, vary from pale to dark blue, sparingly spotted with reddish brown.

PRATINCOLA RUBETRA.

THE WHINCHAT.

(Plate 9.)

Ficedula rubetra major *sive* rubicola, *Briss. Orn.* iii. p. 432, pl. 24. fig. 1 (1760).
Motacilla rubetra, *Linn. Syst. Nat.* i. p. 332 (1766); **et auctorum plurimorum**—*Latham*, (*Temminck*), (*Naumann*), (*Gould*), (*Schlegel*), (*Newton*), (*Dresser*), (*Heuglin*), (*Sharpe*), &c.
Sylvia zya, *Scop. Ann. I. Hist. Nat.* p. 158 (1769).
Sylvia rubetra (*Linn.*), *Scop. Ann. I. Hist. Nat.* p. 159 (1769).
Motacilla fervida, *Gmel. Syst. Nat.* i. p. 968 (1788).
Sylvia fervida (*Gmel.*), *Lath. Ind. Orn.* ii. p. 525 (1790).
Saxicola rubetra (*Linn.*), *Bechst. Orn. Taschenb.* i. p. 219 (1802).
Pratincola rubetra (*Linn.*), *Koch, Syst. baier. Zool.* p. 191 (1816).
Curruca rubetra (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 24 (1816).
Œnanthe rubetra (*Linn.*), *Vieill. N. Dict. d'Hist. Nat.* xxi. p. 427 (1818).
Œnanthe fervida (*Lath.*), *Vieill. N. Dict. d'Hist. Nat.* xxi. p. 436 (1818).
Fruticicola rubetra (*Linn.*), *Macgill. Br. B.* ii. p. 273 (1839).
Rubetra major, *Gray, List Gen. B.* p. 22 (1840).
Pratincola fervida (*Gmel.*), *Gray, Gen. B.* i. p. 179 (1846).
Pratincola senegalensis (*Briss.*), *Hartl. Orn. W.-Afr.* p. 68 (1857).

The Whinchat may be said to be pretty generally diffused throughout the three kingdoms, and in certain localities is a common and abundant species. It is rarer and more local in Ireland, and only breeds occasionally in the extreme south-west of England; whilst in Scotland in many districts it is absent altogether, although it ranges up to the extreme north, and has occasionally been seen on the Orkney Isles. On the Hebrides it is a fairly common bird, and it has once been recorded from the Faroe Islands. The Whinchat breeds in all suitable localities throughout Central and North Europe, ranging from the Arctic circle as far south as the pine-regions extend. It passes through South Europe on migration, a few birds remaining to breed at elevations that place them in a similar climate to their more northern congeners. It winters in parts of South Europe and North Africa, ranging as far south on the latter continent as the Gambia and Fantee country in the west, and Nubia and Abyssinia in the east. The Whinchat is found in the Caucasus. The record of its occurrence in Persia by De Filippi seems doubtful; and the eastern range of the species is most probably the Ural Mountains.

The haunts of the Whinchat are the upland wastes quite as much as the lowland pastures. The bird is commonly seen in the large gorse-coverts, from which it receives its name of Whin- or Furze-Chat. Its favourite haunts are in the pastures and the hay-meadows; whilst far up the mountain-sides on the broad stretches of heather it is common in summer. The Whinchat is also abundant on the commons and rough open wastes clothed with stunted bushes, briars, and brambles. In the south of England it reaches its favourite haunts by the middle of April, the northern districts being tenanted by these birds a little later, sometimes not until the beginning of May. In some few instances the Whinchat has been known to winter in England; but the authentic occurrences of the bird at this season are so few that it must be considered a strictly migratory bird, leaving us for the south in the third week in September. It will most probably arrest your attention as it either sits on the very topmost spray of some bush or heath-tuft or clings firmly to a stout grass-stem or dock-plant, swaying gracefully up and down by the weight of the bird upon it. There it sits quietly, incessantly fanning its tail with graceful motion, and occasionally uttering its monotonous call-note of *u-tac u-tac-tac-tac-tac*, a note which has gained for the bird its local name of "Utick" in many country districts. As you approach the little creature seems to awaken to its danger, and flits rapidly off, in undulating fitful flight, to another stem of herbage or topmost twig, where it sits and watches you as before. Although the Whinchat so often chooses a perch near the ground, it by no means shuns the trees, and, especially towards the end of summer, it is seen with its young brood high up amongst the branches. The bird does not show that partiality for walls and rocks which is so marked a feature of the Redstart or Wheatear. In the pastoral districts the Whinchat, directly after its arrival, frequents the fallows which are being worked for the turnip-crops, and on these places is found almost continuously until the neighbouring pastures afford it sufficient shelter. The Whinchats never roost in trees, but always on the ground. When they first arrive we may find them at night on the fallows, but for the remainder of the season grass-fields and turnip-lands are frequented. In the wilder parts of its haunts the Whinchat roosts amongst the heath and the tangled undergrowth of gorse-covert and brake. Another remarkable trait in the character of this bird is its activity in the dusk of the evening, a time probably when some insect that forms its favourite food is abundant; and its well-known call-notes may be heard long after the birds themselves are concealed from view by the falling shadows of night.

Like the Redstart and the Wheatear the Whinchat seeks much of its food in the air. It takes its stand on some favourite perch and watches the clouds of insects sailing dreamily around. Ever and anon it launches into the air to catch a fly or a gnat. The food of the Whinchat is almost exclusively confined to insects and small worms obtained amongst the herbage on the ground. Beetles and the small flies so abundant amongst the grass form its favourite fare. It feeds largely on the wireworm; and this explains the bird's presence on the fallow land in the spring and on the turnip-fields when the young plants are in their first leaves, the only time at which they are exposed to the inroads of the dreaded "fly," which also forms part of its sustenance. It is doubtful whether this species feeds on fruit or berries; but it has been known to eat the growing corn. In the early autumn, when the young birds are with their parents, the pastures are frequented, and the droppings of the cattle searched for beetles and worms.

Shortly after its arrival the Whinchat is in full song. Its melody is so unobtrusive, so low of tone, that it is very often overlooked. It is a song very similar to the Redstart's, and chiefly uttered when the bird is hovering in the air. It will, however, warble from a perch; but this is, for the most part, after the pairing-season, and usually from some twig near the nest. The Whinchat is one of the first birds to lose his powers of song. He warbles incessantly throughout the month of May, not so frequently in June, and by the first days of July he is songless, for the autumnal change of plumage is shortly to be made. The call-notes have already been mentioned; but, in addition to these, it utters a peculiarly low *peep*, which seems to be a note expressive of anxiety when its nest is menaced.

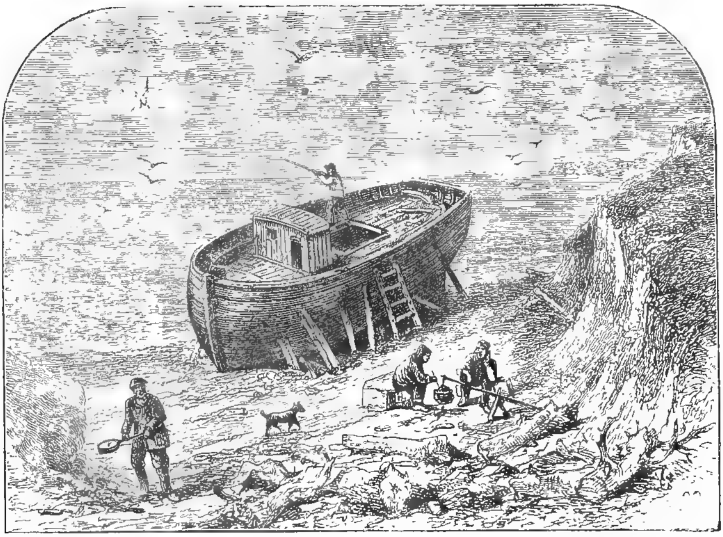
By the middle of May the Whinchat is seen in pairs, and after a week or so their nest is completed. If on the moorland, the female bird finds a place to build her nest amongst the heather; if in the gorse-coverts, she will repair to the herbage in their midst, and make her home under some dense and impenetrable whin-bush; while if her haunt is the open fields, her home is built amongst the grass, sometimes in the centre of the fields, or at others close to the hedgerows. During the whole time the birds are engaged in building their nest they are the very essence of wariness. Notice, for instance, how the male bird, when bringing materials to the nest, will try to weary your patience by his deceptive motions. From spray to spray he hops, sometimes sitting motionless for a few moments, and then flying to some distant bush, all the time uttering his monotonous note, then back again to alight in the herbage, to reappear the next moment, however, with the materials still in his beak. Aware of your presence he will not visit the nest; and if you wish to find it you must search the locality closely, and depend upon good fortune for success, for you may rest assured the bird will not betray its whereabouts. The nest of the Whinchat is usually made in a little cavity in the ground, and the thickest tufts of herbage are selected. Dry grass, moss, and a few straws form the outside of the nest; internally it is composed of rootlets and horsehair, loosely put together and almost enshrouded in the surrounding herbage. The eggs are from four to six in number, greenish blue like the Hedge-Accentor's, but different in form, being more pointed at both ends. The markings are somewhat faint, and usually consist of a zone of small light brown spots round the larger end, although in some specimens this zone is round the smaller end. They vary in length from ·81 to ·71 inch, and in breadth from ·6 to ·55 inch.

It has been stated that the Whinchat rears two broods in the season, but probably erroneously. Certain it is the Whinchat of the pastures only rears one brood in the year, for the grass is usually mown even before its young have reached maturity, and consequently cover for a second nest is wanting. The decline of the male bird's song is another conclusive proof that the birds are single-brooded, for rarely do we hear him sing after the first week in July.

Much anxiety is evinced by the Whinchat, especially by the female, when the nest is approached. They will fly round and round your head, or take short flights from one stem of herbage to another, all the time uttering their low *peep,* or their louder and better-known call-note. The nearer their nest be approached the more anxious the little creatures become, and flit about more rapidly, and sometimes flutter in the air above you or drop silently down into the herbage. The young birds keep with their parents throughout the autumn, and probably migrate in company. At this season of the year, when the grass is cut, the Whinchat is rather more shy and difficult of approach, and is seen on the swathes of newly cut grass flying restlessly about, and seemingly highly concerned at the loss of the friendly shelter which the long grass afforded.

The general colour of the Whinchat above is blackish brown, with sandy buff margins to the feathers, brightest on the rump. The wings and tail are dark brown, the former having the smaller coverts white and the latter having the basal half white, except the two centre feathers, which only have the extreme bases so. There is a buffy white streak over the eye, round the chin, and along the sides of the neck; the ear-coverts are black, and the remainder of the under plumage rich rufous, palest on the centre of the belly and under tail-coverts, and deepest on the breast. Bill, legs, toes, and claws black; irides brown. The female bird, although similar to the male, is much paler in colour, and the white parts that adorn the male are not so pure, and the black parts are brown. The nestling bird is similar to the female, only the spotting of the upper parts is more defined, and the breast is waved and barred with darker brown. After the autumn moult the male birds resemble the females; the rufous tints are not so dark, and the broad pale margins to the feathers give the bird a much lighter appearance.

As we previously stated, the eastern range of the Whinchat is probably the Ural; but the bird has an eastern representative in the Indian Whinchat (*Pratincola macrorhyncha*). It differs from our bird by having a longer and somewhat more slender bill, is much larger, has very much more white on the tail, and the wing-formula is different. In the Common Whinchat the second primary equals the fifth, but in the Indian bird it is equal to or longer than the seventh.



PRATINCOLA RUBICOLA.

THE STONECHAT.

(Plate 9.)

Ficedula rubetra, *Briss. Orn.* iii. p. 428, pl. 23. fig. 1 (1760).
Motacilla rubicola, *Linn. Syst. Nat.* i. p. 332 (1766); **et auctorum plurimorum**—(*Bechstein*), (*Temminck*), (*Naumann*), (*Yarrell*), (*Schlegel*), (*Newton*), (*Dresser*), (*Bonaparte*), &c.
Sylvia muscipeta, *Scop. Ann. I. Hist. Nat.* p. 159 (1769).
Sylvia rubicola (*Linn.*), *Lath. Ind. Orn.* ii. p. 523 (1790).
Saxicola rubicola (*Linn.*), *Bechst. Orn. Taschenb.* i. p. 220 (1802).
Pratincola rubicola (*Linn.*), *Koch, Syst. baier. Zool.* p. 192 (1816).
Curruca rubicola (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 24 (1816).
Fruticicola rubicola (*Linn.*), *Macgill. Brit. B.* ii. p. 279 (1839).

The Stonechat closely resembles the Whinchat in form and general habits, and slightly so in appearance, a circumstance which has caused much confusion to arise between the two species; for in almost all parts of England the Whinchat, by far the commonest species, popularly does duty for the Stonechat, and in many parts of Scotland the Wheatear is universally known by that name. But, unlike the Whinchat, the present species is, in our islands at least, a constant resident, and may be seen in its favourite haunts at all times of the year. Its distribution in Great Britain is somewhat local, much more so than that of the Whinchat. The Stonechat breeds in suitable localities in all the counties of Great Britain and Ireland, the Channel Islands, and the Hebrides, and is occasionally found on the Orkney and Shetland Isles, but is not known to breed there. On the continent the Stonechat is not found north of the Baltic or east of the valley of the Volga; but it is a resident in North Africa, Palestine, and Asia Minor.

The Stonechat has several very near allies, with some of which it apparently interbreeds, as intermediate forms occur. In North-east Russia and Siberia *P. maura* is found, with black axillaries and unspotted white rump. In North-east Africa *P. hemprichii* occurs, with more white than black on the tail in thorough-bred birds. In South Africa our species is represented by *P. torquata,* in which the rump is white and the chestnut on the breast more restricted.

The haunts of this charming little bird are almost exclusively confined to the heaths and commons and rough open wastes, rock-strewn and overgrown with tangled briars and brambles and a few stunted bushes. A likely place to look for the Stonechat is on the borders of the moors, where their monotony is relieved by patches of broken ground, strewed with rocks and overgrown with bilberry, heath, bracken, and bramble, and studded pretty frequently with bushes, with here and there an occasional birch or mountain-ash tree. But the Stonechat is not exclusively confined to the wild barren wastes or to the "roughs" adjoining them, for sometimes it is seen, usually in the winter or spring, in the fields of the well-cultivated districts—birds most probably driven in by stress of weather, or on migration and merely resting on their journey.

Although the Stonechat is migratory on the continent, it is a resident bird in the British Islands. It is, however, possible that a few of the birds bred here leave us in the autumn and return in the following spring. In Ireland, although the bird is a resident, its numbers are said to decrease in the summer and again increase in the autumn.

The Stonechat is usually seen in pairs, indeed it is not improbable that this bird is mated to its partner for life. In its general habits it is very similar to the Whinchat. It flits before the observer, perching on the topmost sprays of heath and bush, or makes long detours to its favourite haunt from which it was first disturbed. Like the Whinchat, its tail is almost incessantly in motion, and its call-note is uttered repeatedly. Always restless and noisy, this little creature is sure to press itself upon the attention, if it be present at all. Perhaps the situations which seem most in harmony with the Stonechat's rich and varied dress are the gorse-coverts in the early spring. The richly attired male bird hops amongst the dense branches of the gorse, or balances himself daintily on some spray of golden bloom, or flutters in the air in butterfly-like flight to poise lightly on some spray where his rich plumage contrasts with the golden tints in such abundance all around. If seriously alarmed, the little creature will seek safety amongst the densest portions of the surrounding vegetation. Rarely, indeed, does the Stonechat visit the ground except for the purpose of searching for food; nor does it, as a rule, perch as much as the Wheatear on the turfs or stones. In the winter the Stonechat may still be seen in its summer haunts. Even though the moorlands are lying deep in snow it will be there to flutter from bush to bush, or start from the places where the snow has been driven past and left ground which may be searched for a scanty sustenance. But if the weather still keeps severe, if the storm continues unabated for any length of time, the Stonechat often comes nearer to the houses, and seeks its food in company with the Robin, the Wren, the Sparrows, and other birds that depend so largely on our bounty in the cold and cheerless winter season. Dixon observes "that one pair of Stonechats keep most closely to a certain locality, from which they seldom stray far. Nor can they be driven away from the haunt of their choice. You may follow them, harass them incessantly, but they will merely flit from bush to bush, elude you probably at last, but eventually again appear after some little time on their favourite perching-places. We have thus known portions of rough land, not an acre in extent, always tenanted by a pair of birds, and for years they have not been seen away from it. We would also here note that the name 'Stone'-Chat is a misnomer as applied to this species. The Wheatear is the true *Stone*-Chat, the present bird and the Whinchat being far more aptly called 'Bush-Chats,' a name applied to them by the ever-discerning and talented Macgillivray."

The food of the Stonechat is very similar to that of the Whinchat; but in the winter it eats seeds of various kinds, worms, and small grubs and larvæ. Its summer fare is composed almost entirely of insects, and the small beetles and worms found in marshy places and amongst the droppings of cattle. Like the Whinchat, the present species secures much of its insect food whilst hovering in the air, catching flies on the wing just like the Flycatcher or Redstart. It is in these flights that the bird's varied plumage is seen to best advantage, especially if its quarry be pursued for any considerable distance, as is frequently the case. The Stonechat has been known to make flights after small brown moths, and occasionally to take the common white butterfly. In winter, should the frost be severe, the Stonechat is often seen in marshy places, or on the banks of the streams that wander through them, in search of whatever it can find edible at a time when food is so scarce.

In spring, when all nature seems reviving under the cheerful beams of a brighter sun, the Stonechat's melody is amongst the first to inform us of the change of season. It is the first music heard on the upland wastes, except, indeed, that of the Skylark. Long before the Meadow-Pipits are in song, or the Buntings chant their monotonous music, the little Stonechat may be heard to pour forth his cheering notes. Nothing very remarkable, it is true—a short performance, low of strain, and little varied; yet it forms a pleasant variety in itself, and a cheerful contrast to so much that is wild and lonely in the surrounding country. The little creature starts, may be, from a spray of broom, which rebounds and quivers as he leaves it, and, fluttering in the air, he utters his music and retires to his perch again. His song is like his flight, short and irregular, and no sooner heard and began to be appreciated and listened to with pleasure than it ceases, only to be renewed when the little chorister bounds fluttering into the air again. Its call-notes are somewhat similar to those of the Whinchat, a sharply uttered *u-tsik, tsik, tsik,* or, more frequently, but one syllable alone, *tsik, tsik, tsik,* the tail usually being gracefully wafted to and fro as each note is uttered.

The barren moors, the wild uplands and heaths where the furze bushes attain such luxuriance, and where the stunted juniper bushes, brambles, and thorns are interspersed with heath, are the Stonechat's favourite nesting-places. Its breeding-season commences in the third week of April, sometimes not until the beginning of May, according to the state of the season. The nest is invariably on the ground, and always cunningly concealed. Some recess under a gorse bush, perhaps in the very centre of the covert, or in the herbage growing at the foot of a solitary shrub on the open moor, is the site usually selected. The nest is composed of dry grass and moss, occasionally a few rootlets, and is lined with finer bents, hair, feathers, and sometimes a little wool. Although somewhat loosely put together and exhibiting but little skill, the nest of this bird is a pretty one.

The eggs of the Stonechat are from four to six in number, and vary considerably in the extent and intensity of their spotting. They are pale bluish green in ground-colour, clouded and spotted with reddish brown. In most eggs of this bird the spots are confined for the most part to a broad zone round the larger end, and in some specimens the end is covered completely with them. The pattern is very similar to that of the eggs of the Whinchat, only far more intense and more widely dispersed. Eggs of the Stonechat are sometimes found almost spotless, others are so richly marked as to resemble the eggs of the Spotted Flycatcher; and it will also be noticed that clutches of eggs are seldom uniform in the intensity of their colouring, the last-laid eggs being usually paler. They vary in length from ·75 to ·65 inch, and in breadth from ·59 to ·55 inch. The Stonechat shows much anxiety for the safety of her eggs and young; and, once disturbed, she will tire any, except the most patient observer, by her protective wiles. She flits from bush to bush, occasionally alighting in them, as though about to visit her nest, which, however, is most probably some distance away; or she sits on some slender spray calling incessantly to her mate on a neighbouring bush. Of all the nests of the smaller birds that of the Stonechat is perhaps the most difficult to discover; and the peculiar motions of the birds themselves make the search still more so. In some cases so closely does the female bird sit upon the nest that the bush which shields her home may be rudely shaken ere she will leave it; and even when thus scared away she usually prefers to creep and glide through the surrounding cover than to take wing. As the Stonechat ceases to sing by the third week in June, it is very probable that but one brood is reared in the season. The young are tended after they leave the nest, as is the case with the Whinchat; shy little creatures they are, and upon the least alarm retire immediately to the shelter of the nearest cover.

The male bird has the throat, head, and back black, with the feathers of the upper parts slightly edged with brown; rump white, each feather with a dark centre and rufous margin; wings and tail dark brown; base of the innermost secondaries and the smaller coverts pure white, which forms a patch on the wing, most conspicuous when the bird is flying. Sides of the neck and breast white, the remainder of the underparts rufous-brown, richest on the breast; bill, legs, and feet black; irides dark brown. The female is not nearly so richly clothed as her mate, being browner in every part, and with the white patches of her plumage suffused with a rufous shade. The nestling bird is spotted and streaked above and below, and has broad buff margins to the quills and tail-feathers, and no trace of the dark throat or white patches that distinguish the adult. In the autumn the male Stonechat's plumage is browner, more like the female, from the effect of the broad buff margins to the feathers. The nuptial dress is gained, not by a moult, but by the casting of these buff margins in the spring.

Genus MUSCICAPA.

The genus *Muscicapa* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 324. As Linnæus adopted this name from Brisson (Orn. ii. p. 357), and as the *Muscicapa muscicapa* of Brisson is the Spotted Flycatcher, that bird may fairly be considered the type. The Flycatchers may be distinguished by the shape of the bill, which is very broad at the base, slightly flattened, and by their numerous and conspicuous rictal bristles. The tarsus also is short, in the British species less than a quarter the length of the wing.

Sharpe, in his 'Catalogue of the Birds in the British Museum' (iv. p. 149), includes twenty species in this genus. The Flycatchers inhabit the Palæarctic, Oriental, and Æthiopian Regions, extending southwards to the Moluccas, but not occurring in the Australian Region. Four species are found in Europe, of which two breed in the British Islands and one is an accidental visitor.

The Flycatchers are essentially arboreal birds, and frequent the outskirts of woods, groves, and gardens. They seldom alight on the ground, but sit perched on the branches, from which they sally into the air to catch their prey, which is almost exclusively composed of insects. They will also occasionally eat fruit. They are birds possessing small powers of song. Their nests, which are loosely constructed of dry grasses, moss, wool, feathers, &c., are built in holes of trees and walls and in crevices of bark. Their eggs are from four to six in number, and vary from pale blue completely spotless, to pale bluish green mottled and spotted with reddish brown.

MUSCICAPA GRISOLA.

SPOTTED FLYCATCHER.

(PLATE 9.)

Muscicapa muscicapa, *Briss. Orn.* ii. p. 357, pl. xxxv. fig. 3 (1760).
Muscicapa grisola, *Linn. Syst. Nat.* i. p. 328 (1766); **et auctorum plurimorum**—*Temminck, Macgillivray, Yarrell, Gray, Gould, Sundevall, Layard, Shelley, Newton, Sharpe, Dresser,* (*Hume*), &c.
Butalis grisola (*Linn.*), *Boie, Isis,* 1826, p. 973.
Butalis africana, *Bonap. Compt. Rend.* xxxviii. p. 652 (1854).
Muscicapa africana (*Bonap.*), *Gray, Hand-l. B.* i. p. 321 (1869).

The Spotted Flycatcher is one of the latest of our summer migrants. A sombre, unassuming little species it is, and solitary and sedentary in its habits; yet from its partiality for gardens, and its great familiarity, it is one of the best known of our summer birds of passage. Throughout Great Britain it is a common bird from May until September, breeding in every county, but becoming rather less numerous in Scotland and in the Channel Islands. Northwards the Spotted Flycatcher becomes rarer and far more local in its distribution, and on the islands of Orkney and Shetland it is very rarely seen. Thompson describes it as a regular summer visitant to some parts of Ireland, and perhaps to suitable localities throughout the island; it is, however, but very locally distributed, even in those counties in which it is found, as Cork, Kilkenny, Tipperary, Clare, Dublin, and those in the north-east part of Ulster. Throughout the European continent and the islands of the Mediterranean it is a very common bird, and, for the most part, a regular summer migrant. It breeds in tolerable abundance in Scandinavia, as far north as Tromsö. In Russia it ranges as far north as Archangel, and is a common species in Central Russia, but does not range far north in the Ural district. Harvie-Brown and I did not meet with it in the Petchora; but my collectors have sent me skins from Krasnoyarsk. Throughout the rest of Europe it is a common bird, although in some localities it is far more numerous than in others. It has not yet, however, been recorded from Greenland, Iceland, or the Faroes. It breeds in great numbers in Palestine and Turkey in Asia, and was met with by De Filippi and Blanford in Persia, the latter gentleman remarking its exceptional abundance in certain localities on the highlands of that country. It is also found in Arabia. It is recorded as breeding throughout Turkestan, and has at least occurred as far to the east as Lake Baikal. A few specimens occasionally wander into Western Continental India during the winter season. In Africa the Spotted Flycatcher is found as far south as Cape colony, in some parts, both of the north and south of the continent, being said to be a resident or partially migratory species. It is apparently a rare bird in Egypt, but common in Algeria, where it occurs on passage, a few remaining to breed. We have no record of this species from any of the Atlantic islands off the coasts of this continent. In China southwards to the Philippines and the Moluccas the Spotted Flycatcher is represented by a nearly allied form, the *Muscicapa griseisticta* of Swinhoe, differing in being slightly smaller, in being browner above, more broadly streaked on the breast, and with a shorter tail. In Eastern Siberia it is represented by two other nearly allied species, *M. latirostris* and *M. sibirica.* In the valley of the Angora the range of the Spotted Flycatcher overlaps that of its eastern representatives. *M. sibirica* has much darker underparts; *M. latirostris* is without the spots on the breast; and both are much smaller birds than *M. grisola.* Sharpe, in his 'Catalogue of the Birds in the British Museum,' vol. iv., places these three species in three different genera, the characters of which chiefly depend on the form of the bill. This group of birds appears to me to be one in which the general style of coloration is of much greater generic value than slight differences in the shape of the bill.

The Spotted Flycatcher rarely arrives in its summer haunts in Great Britain before the first or second week in May, generally not until the oak trees are partially in leaf, and the season affords abundance of insect food. It frequents the well-cultivated districts, and delights to haunt the borders of woods and well-timbered parks. It is also found commonly in gardens and pleasure-grounds and in orchards, often on the wooded banks of streams and ponds, and, more rarely, attaching itself to some small clump of trees in the centre of pastures, on whose long, drooping boughs it sits and ever and anon sallies forth to catch the passing insects. Gifted with no great powers of song, and exceedingly sober and chaste of dress, this little bird is very often passed unnoticed, unless its oft-repeated call-notes arrest the attention of the passer-by. Here, in his favourite haunts, you will most frequently observe him sitting upright and motionless on some favourite perch, either on a stake or iron fence, haystack, or long bare branch, watching intently the clouds of insects playing round him. As the flies come near he sallies out repeatedly and, fluttering in the air, secures them with a sharp snap of his bill, returning quickly and silently to his perch again to sit motionless as before. If it be in autumn, his mate and brood will be near him—perhaps all sitting in a row on a convenient fence, the parent birds catching insects and feeding their young. Spotted Flycatchers are often seen hovering in airy flight over the meadow-grass, every now and then alighting to secure the small insects and beetles lurking on the stems of the herbage. They will sometimes pursue an unusually large insect for fifty yards or more; and then the Flycatcher's peculiar flight is seen to perfection. This bird also often visits manure-heaps, feeding on the small beetles; and it may be seen searching old walls for food, by fluttering in front of, and occasionally clinging to, them.

The Spotted Flycatcher often seeks its meal in the dusk of the evening, pursuing various small moths and beetles; and it is one of the earliest birds astir in the light summer mornings, its monotonous call-notes being heard just as early as the songs of the Thrush and Blackbird. The food of this species is composed largely of insects, especially of flies and gnats; spiders and beetles are also eaten, as well as various kinds of butterflies and moths; and, on the authority of Collett, it is said to feed on berries in the autumn months, and is then caught in snares laid for Thrushes, and baited with the berries of the mountain-ash.

It is very widely and popularly believed that the Spotted Flycatcher is not gifted with any powers of song; but this is an error. His song is heard but rarely, it is true, and is uttered in such a low tone as to be scarcely heard a few yards away. It is given forth both when the bird is sitting at rest and when fluttering in the air after insects. It consists of a few rambling notes, not unlike part of the Whinchat's song. The monotonous call-note may perhaps be best expressed by the letters *zt, zt*; it is uttered in rapid succession from one perching-place, and every now and then the tail is jerked to and fro with graceful motion. Sometimes a second syllable is added to the call-note, which then sounds like *zt-chick*.

Although the Spotted Flycatcher is capable of rapid undulating flight, it but rarely avails itself of its powers, and seems unwilling to fly for long distances at a time. Its usual mode of progression is from tree to tree or bush to bush; and when once it has taken up its summer-quarters, it rarely strays far away from them until it leaves them in the autumn for its winter home. The date of its departure is a comparatively early one; this bird leaves our shores long before the last Swallows take their departure, and is rarely seen after the third week in September.

Although the Spotted Flycatcher arrives here in May, its nest is seldom found before the latter end of the month, and sometimes not until early June. Its breeding-grounds are gardens, orchards, well-timbered parks, and woods, on the outskirts of which the birds may be repeatedly seen in search of their insect prey. The nesting-site is a varied one—in the crevices of the bark of old trees, in trellis-work overgrown with creeping plants, on the horizontal limbs of trees (usually near the trunk), and on wall-trained fruit-trees. A favourite place is in shallow holes in tree-trunks, such as a small cavity formed by the action of the rain rotting the wood where a branch has been broken away. In all instances, however, it is well supported, on one side at least, either by the trunk of the tree or by the wall against which the fruit-trees are trained. The materials which compose the nest are dry grass, cobwebs, moss, and perhaps a few feathers, together with the wing-cases of various insects. It is lined with rootlets, a thick bed of hair, and occasionally a few feathers. Owing to the peculiar nature of the site, which affords so much support, the nest is small and but loosely put together.

The Spotted Flycatcher sometimes builds its nest in very curious situations, without the slightest attempt at concealment. When I used to go to a day-school we had to pass through a doorway that separated the garden from the shrubbery. The door itself had been taken away, but the iron hinges on which it formerly swung still projected from the brickwork. One day one of my schoolfellows pointed out to me a nest stuck behind the upper hinge, just out of our reach. I laughed at him when he told me that a bird had built it there, and pulled it down, telling him that some boy must have put it there for a freak. He, however, assured me that he had seen a bird fly from it, and climbed up and replaced the nest behind the hinge as well as he could. The next morning I myself saw the bird fly from the nest as we approached the doorway, and on climbing up I was astonished to find that the nest contained an egg of a Spotted Flycatcher.

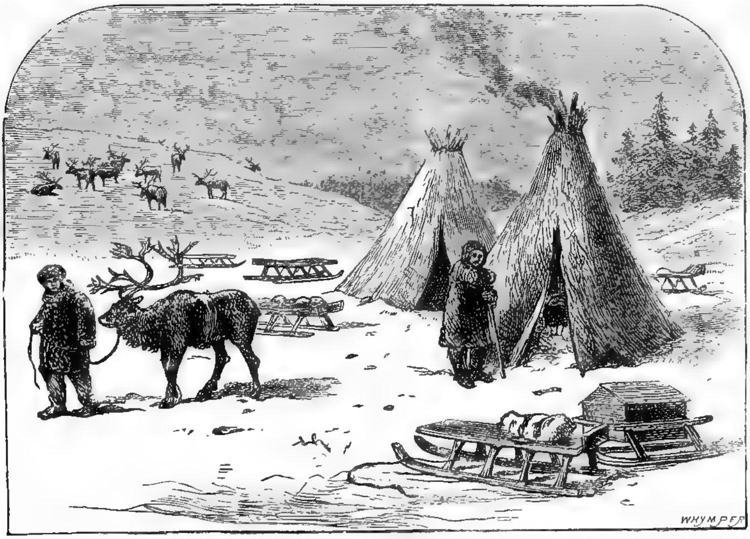
A very handsome nest of the Spotted Flycatcher in my collection is somewhat larger than usual, and resembles certain nests of the Robin. The lining contains no feathers, but is completely composed of fine dry grass and a few hairs. It is deeply cup-shaped and the frontage to the nest is broad. Externally it is chiefly composed of moss, long stems of water-plants, grass-blades, and leaves of herbage—now dry and withered, but evidently gathered in a green state. Here and there may be seen parts of dead leaves almost skeletonized and a few scraps of green lichens. Nests of this bird are sometimes composed largely of sticks and fibrous roots, and then they are usually warmly lined with wool and feathers. Each season the Spotted Flycatcher returns to the haunt of its choice and rears its brood for years in succession in one favoured place. Sometimes it will desert a locality for a season, especially if it is repeatedly disturbed, but afterwards return to it again.

The eggs of the Spotted Flycatcher vary in number from four to six, and range from bluish white to pea-green in ground-colour, blotched, spotted, and clouded with various shades of reddish brown. Some eggs are so richly covered with spots as to hide the ground-colour, and resemble very closely certain varieties of Robin's eggs; others have the markings confined to a zone round the larger end; while many are more evenly marked and singularly clouded with a faint roseate tinge, which adds considerably to their beauty, but which soon fades after they are blown. They vary in length from ·8 to ·7 inch, and in breadth from ·62 to ·52 inch.

From causes which it is not easy to explain, the female bird sits upon her eggs as soon as they are laid, and we therefore sometimes find them in various stages of development in the same nest.

As the Spotted Flycatcher breeds so very late in the season, and departs so early for its southern haunts, but one brood is reared in the year. Instances, however, have occurred where this bird has been known to rear two broods in the season.

The whole of the upper plumage of the Spotted Flycatcher, including the wing-coverts, is hair-brown, the wings and tail being a little darker, with a few darker spots on the crown of the head. The lower parts are greyish white, suffused with buff on the flanks, and with light brown across the breast, which is streaked with dark brown. Beak dark brown; irides dark hazel; legs, toes, and claws black. The female does not differ in colour from the male. The young birds in the nestling-plumage are "spotted" Flycatchers in the strict sense of the word, each brown feather having a buff-coloured centre; the underparts, however, are very similar to those of the adult. After the autumn moult, the innermost secondaries and the wing-coverts are broadly, and the quill and tail-feathers narrowly, tipped and margined with buff, which colour is suffused more or less distinctly over the entire upper surface, most prominently on the rump and upper tail-coverts.



MUSCICAPA ATRICAPILLA.

PIED FLYCATCHER.

(Plate 9.)

Muscicapa nigra, *Briss. Orn.* ii. p. 381 (1760, ♂).
Ficedula ficedula, *Briss. Orn.* iii. p. 369 (1760, ♀).
Ficedula rubetra anglicana, *Briss. Orn.* iii. p. 436 (1760, *ex Edwards*).
Muscicapa atricapilla, *Linn. Syst. Nat.* i. p. 326 (1766); **et auctorum plurimorum**—*Yarrell, Gray, Blyth, Bonaparte, Cabanis, Schlegel, Sundevall, Loche, Gould, Heuglin, Sharpe, Newton, Dresser, Blanford,* &c.
Emberiza luctuosa, *Scop. Ann. I. Hist. Nat.* p. 146. no. 215 (1769).
Muscicapa muscipeta, *Bechst. Naturg. Deutschl.* iv. p. 502 (1795).
Muscicapa luctuosa (*Scop.*), *Temm. Man. d'Orn.* p. 101 (1815).
Muscicapa alticeps,
Muscicapa fuscicapilla, } *Brehm, Vög. Deutschl.* pp. 225, 226, 227 (1831).
Muscicapa atrogrisea,
Muscicapa picata, *Swains. Jard. Nat. Libr.* x. p. 254 (1838).
Hedymela atricapilla (*Linn.*), *Sundev. Œfv. K. Vet.-Akad. Förh. Stockh.* 1846, p. 225.
Muscicapa speculigera, *Selys, fide Bonap. Consp.* i. p. 317 (1850).
Muscicapa speculifera, *Selys, fide Schl. Vog. Nederl.* p. 225 (1854).
Ficedula atricapilla (*Linn.*), *Sund. Av. Meth. Tent.* p. 23 (1872).

The Pied Flycatcher is not nearly so common or so widely dispersed in Great Britain as the Spotted Flycatcher. Its distribution is comparatively restricted and confined, for the most part, to one or two favoured localities in the north of England and the south of Scotland. Although it breeds in some districts in North Wales and the English counties on the Welsh border, its chief summer haunt appears to be from South-west Yorkshire, extending northwards to the Lake-districts of England and the eastern and midland counties of Scotland, from Berwickshire to Caithness. It is also known to breed in Inverness-shire; and Messrs. Baikie and Heddle assert that it is often observed in the Orkneys; but it does not appear to have been recorded from Shetland. Returning to the midland counties of England, we find it a rare straggler; but it has been noticed in the counties of Leicester, Derby, Stafford, Worcester, and Hereford. It has also been obtained in all our eastern and southern counties from Norfolk to Cornwall and the Isle of Wight, and occasionally in North Devon, Somerset, Gloucester, Oxford, Wilts, and Dorset. It has never been recorded from Ireland, nor does it ever appear to reach Iceland or Greenland; but a small flock was once seen on the Faroes.

On the Continent the distribution of the Pied Flycatcher is somewhat peculiar. It is common in Scandinavia during summer, having been found breeding up to lat. 69°; but in Russia it is not found so far north—in Finland ranging to lat. 65°, and in the Ural Mountains (which appear to be the eastern limit of its range) only to lat. 57°. It is a common, but somewhat local, summer visitor to France, Holland, Belgium, and Germany. In Spain, Italy, Turkey, Greece, South Russia, and Asia Minor it is principally known as passing through on migration, though it is possible that a few may remain to breed. It is found in the Caucasus and North Persia, but whether as a summer or winter visitant is not known. In Palestine Canon Tristram says that it is a rare summer visitor; Heuglin says that it passes through North-east Africa on migration; but in Algeria it appears to be a resident, and in West Africa it has occurred as far south as the Gambia, but only as a winter visitant, as it is also in the island of Teneriffe.

Referring to its occurrence in Algeria, Dixon writes:—"In many parts of Algeria the Pied Flycatcher is a very common bird throughout the year, and its conspicuous plumage arrests the attention at once. In the luxuriant valley below Constantine it was to be seen on the outskirts of the fig-groves, also in the fast drying-up bed of the river Roumel, where its favourite perching-places were the old roots and heaps of refuse brought down by the floods. In the oases of El Kantara and Biskra it was also a fairly common bird, and was very frequently to be seen perched on the old leaf-stems on the tops of the date-palms. At the former oasis one or two pairs of this bird were breeding in the holes in the apricot-trees, showing no fear of man; whilst at Oued Taga, at an elevation of 5000 feet, it was an inhabitant of the Arab gardens. In its habits and flight, and in its manner of searching for food, it did not differ from the Spotted Flycatcher, its inseparable companion."

The Pied Flycatcher, although it looks such a very different bird, and lays such very differently coloured eggs, has many points in common with the Spotted Flycatcher. Like that bird, it is very fond of gardens. At Valkenswaard we found it in every garden in the village; and in Trondhjem its song resounded from every square in the middle of the town. It was equally common in the wildest scenery; and we took a nest in a hollow elm tree in Romsdal, a magnificent valley, somewhat like Dove Dale in Derbyshire on a large scale. Its choice of a haunt in our own country is given to the wilder districts. In the birch-copses far in the wild it may be seen, also in the deepest and quietest woods it shares the solitude with the Woodpecker; whilst far amongst the mountains, on the wooded shores of those lakes that sleep so peacefully beneath the frowning hills, it finds a suitable home. Insects abound near the waters, and on such an unfailing supply of food its young are safely reared. Unlike the Spotted Flycatcher, the present species is an early migrant, arriving usually in the last week of April, and soon afterwards commencing the duties of incubation.

In many of its movements the Pied Flycatcher resembles its dingy congener. Far more of a restless species than a shy one, it may frequently be seen hovering, in butterfly-like flight, in the air. Sometimes it sits quietly on some decayed limb, ever and anon uttering its call-notes and incessantly jerking its tail and half opening its wings, as though anxious to sally into the air. Its food consists almost entirely of insects, especially of flies and gnats, which it often takes from the leaves of the forest-trees whilst hovering daintily above them. It is also said to feed on various kinds of berries, such as raspberries, currants, elderberries, &c., and also on worms. Its visits to the fruit-trees, however, are most likely principally for the purpose of catching insects, and not exclusively to feed upon the fruit.

The song of the Pied Flycatcher is a very pleasing one, short and somewhat feeble, something like the Redstart's, yet uttered pretty frequently, especially in the early part of its sojourn in our islands, during the pairing-season.

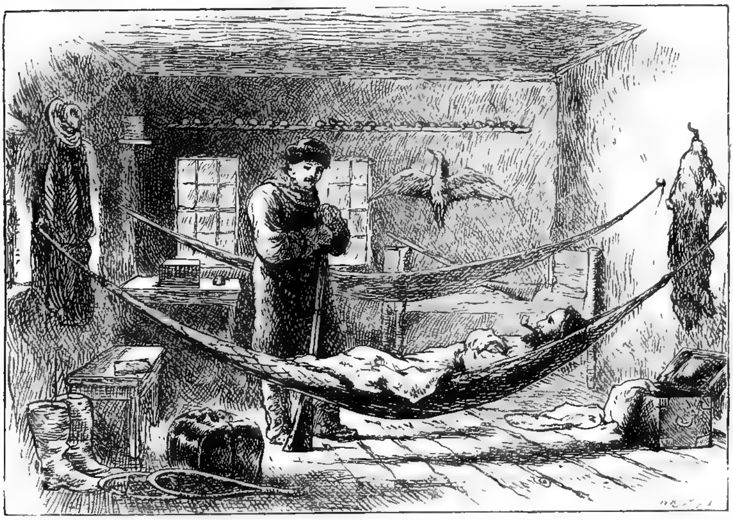
The Pied Flycatcher's nest is always placed in a covered site, which varies but little in its situation. It is built in the holes of birch and other trees, sometimes in a deserted Woodpecker's hole, or crevice of a wall or rock, at various heights from the ground, sometimes but a few feet, at others far up the trunks. In these holes a slight nest is formed of dry grasses, dead leaves, moss, and feathers, sometimes a little wool from the sheep on the neighbouring hills, or a few horse and cow's hairs.

Few of our British eggs are more beautiful in colour than those of the Pied Flycatcher. They are a delicate pale blue, sometimes almost approaching white, perfectly spotless, somewhat frail in texture, and slightly smaller than those of the Hedge-Accentor. In number they vary from five to eight, the latter number, however, being somewhat exceptional; and but one brood is, as a rule, reared in the year. The eggs vary in length from ·8 to ·65 inch, and in breadth from ·58 to ·52 inch.

Dixon once found a beautiful nest of this bird near the moorlands a few miles from Sheffield, his attention being attracted to the place by seeing the bird hovering before the nesting-hole. It was built in a large rotten stump of a birch, the wood of which crumbled away easily and revealed the nest, which contained eight pale-blue eggs, almost ready for hatching. Since this nest was disturbed, the bird has not, to his knowledge, bred there.

The general colour of the upper parts and tail of the Pied Flycatcher is black, duller and greyer on the rump; wings brown, with the central coverts white and the innermost secondaries broadly edged with white. A small patch of white on the forehead at the base of the bill; underparts pure white. Beak black; irides dark brown; legs, toes, and claws black. In the female the black is replaced by brown, and the whole plumage is dingy. Males of the year resemble the adult female, but are slightly darker. Young birds in nestling-plumage are spotted above with buff, and the white of the underparts is irregularly spotted with blackish brown. After the autumn moult, the upper parts of the male are brownish instead of black, the white patch on the forehead is obscured, and the underparts are washed on the breast and flanks with buff.

The White-collared Flycatcher (*Muscicapa collaris*) was included in the British avifauna by the late Mr. Gould, who saw a specimen in the flesh in the possession of Mr. Leadbeater; but he knew no particulars concerning it. As this is the only evidence on which the bird's claim to rank as a British species rests, it is certainly premature and inadvisable to include it in our lists. It is found in company with the Pied Flycatcher throughout most parts of South Europe, and differs from it in having the white spot on the forehead much more developed and the white sides of the neck meeting on the nape and forming a white collar. The Pied Flycatcher does not appear to have any other very near ally.



MUSCICAPA PARVA.

RED-BREASTED FLYCATCHER.

(Plate 9.)

Muscicapa parva, *Bechst. Naturg. Deutschl.* iv. p. 505 (1795); **et auctorum plurimorum**—*Temminck, Naumann, Gould, Gray, Schlegel,* (*Bonaparte*), (*Cabanis*), *Newton, Dresser,* (*Hume*), (*Brooks*), &c.
Muscicapa albicilla, *Pall. Zoogr. Rosso-Asiat.* i. p. 462 (1826).
Muscicapa rufogularis, *Brehm, Vög. Deutschl.* p. 228 (1831).
Saxicola rubeculoides, *Sykes, Proc. Zool. Soc.* 1832, p. 92.
Muscicapa lais, *Hempr. et Ehr. Symb. Phys., Aves,* fol. *t* (1833).
Erythaca tytleri, *Jameson, Edinb. Phil. Journ.* 1835, p. 214 (*descr. nulla*).
Muscicapa minuta, *Hornsch. et Schill. Verz. Vög. Pomm.* p. 4 (1837).
Muscicapa rubecola, *Swains. Jard. Nat. Libr.* x. p. 221 (1838).
Muscicapa leucura, *Gmel. apud Swains. Jard. Nat. Libr.* x. p. 253 (1838).
Erythrosterna parva (*Bechst.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 25 (1838).
Synornis leucura (*Gmel.*), *apud Hodgs. Gray's Zool. Misc.* p. 83 (1844).
Synornis joulaimus, *Hodgs. Gray's Zool. Misc.* p. 83 (1844).
Erythrosterna leucura (*Gmel.*), *apud Blyth, Cat. B. Mus. As. Soc.* p. 171 (1849).
Thamnobia niveiventris, *Swinhoe, Ibis,* 1860, p. 54.
Erythrosterna albicilla (*Pall.*), *Swinhoe, Proc. Zool. Soc.* 1862, p. 317.

This pretty little species, so like a miniature Robin in general appearance, is fairly entitled to a place in the British avifauna, three examples (one of which was accompanied by a mate) having been obtained. The first British example of the Red-breasted Flycatcher was obtained on the 24th of January, 1863, by Mr. Copeland, near Falmouth; and that gentleman supplied Mr. Rodd with the following note of its capture*:—"The little Flycatcher alluded to we had seen some days before it was shot. We first observed it on a dead holly tree, which, with the ground around the house, were its favourite resort. It was particularly active, skimming the grass to within about a foot, then, perching itself, darted occasionally with a toss, resting either on a shrub or the wire fencing. Its habits were interesting, partaking in a great measure of those of our summer visitor [the Spotted Flycatcher]. There is another in the neighbourhood, for which a vigilant watch will be kept. I saw it a few days ago in a plantation four hundred yards from my house." The specimen, a female, was unfortunately damaged by mice, the head being completely eaten away. It was sent in the flesh to the British Museum. In the October following of the same year another bird of this species was captured, in company with young Pied Flycatchers, on one of the Scilly Isles by Mr. A. Pechell and a nephew of Mr. Rodd's. This bird turned out to be a young male. A third example was shot on the 5th of November, 1865, and was recorded in the 'Annals and Magazine of Natural History' (ser. 3, xvi. p. 447) and the 'Zoologist' for 1866, p. 31, by Mr. Rodd. This bird was taken on Tresco Island in Scilly; but from the injuries it received from the shot it was impossible to determine the sex.

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* See Gould's 'Birds of Great Britain,' vol. ii. letterpress to plate xx.

Upon the European continent the range of the Red-breasted Flycatcher is somewhat restricted. It breeds in Germany, Austria, and South Russia as far north as the Baltic Provinces, arriving during the latter end of April or early in May, and departing again in August or September. Its occurrence in Western Europe is only accidental. A single bird was taken in the Baltic near Landsort, off the coast of Sweden, and it has once been obtained near Copenhagen. Two specimens have been killed in the south of France; one example has been killed and another observed in Spain; and its occurrence in Italy is almost as exceptional. Loche says that it is found in Algeria, where it may be a rare winter visitor. It passes through Transylvania, Turkey, Greece, and Asia Minor on migration, and winters in Nubia, where it was found by Hemprich and Ehrenberg. It breeds in the Caucasus and winters in Persia. In Asia, Severtzow says that it passes through Turkestan on migration. Radde, Schrenck, and Dybowsky all record it from the Baikal district; and it is said that skins from Kamschatka, collected by Wosnessenski, are in the St.-Petersburg Museum. It winters in North India and South China.

The Red-breasted Flycatcher is represented by Prof. Newton as forming an exception to the ordinary rules of migration. He suggests that the European birds winter in India. It appears to me, however, that both Prof. Newton, in his edition of Yarrell's 'British Birds,' and Mr. Sharpe, in his 'Catalogue of the Birds in the British Museum,' have entirely misunderstood the geographical distribution of this bird. In my opinion, the range of this bird during the breeding-season extends from Pomerania to Lake Baikal, the Asiatic birds wintering in India and China, the Caucasian birds in Persia, and the European birds in North-east Africa. Eastern examples have been described as another species under the name of *M. leucura*, which has been said to differ in having the chestnut confined to the throat and not extending onto the breast. It seems probable, however, that the latter are merely not fully adult examples of the former. Radde found both forms at Tarei-nor; and I have a perfect series from one to the other. The two extremes are both found in India and China, European examples being somewhat intermediate. My Indian skins, showing the greatest development of the chestnut on the breast, are labelled *M. hyperythra*; but this species may easily be distinguished by the chestnut extending onto the flanks and under tail-coverts, and by the nearly black line separating the chestnut of the breast from the slate-grey of the neck. That this bird does not lose this dark line in winter, as my friend Mr. Brooks supposes, is abundantly proved by examples shot in January and February in Ceylon *.

The Red-breasted Flycatcher is not such a rare bird as it was formerly supposed to be. By some observers it has been confounded with the Robin, and by others it has been overlooked altogether, in consequence of its retiring habits. It does not frequent gardens during the breeding-season, like the other European Flycatchers, but seems to live entirely in the forests. Beech-forests are its favourite resort, probably because its favourite food is some insect which is found principally on beech trees. On its first arrival it is frequently seen in open places near the forests; and after the young are able to fly it will visit any gardens that may happen to be near the beech-forest where it has bred; but during the breeding-season it seems to live entirely secluded. It arrives in North Germany somewhat late, being seldom seen before May, and is one of the first birds to leave in the autumn, disappearing early in September.

The Red-breasted Flycatcher appears to be a connecting-link between the Robins and the Flycatchers. It has almost the tail of a *Pratincola*, with a still wider bill and more developed rictal bristles. This formation of bill shows it to be a true Flycatcher; and birds of this species in confinement feed upon the common house-fly with great avidity, preferring it to any artificial food. In the forest its fly-catching propensities are not so obvious; but it has been observed to catch flies on the wing like its congeners. Its habits are difficult to observe, as it appears to feed principally on or near the tops of lofty trees, rarely descending until it has satisfied its appetite. In the gardens the currants seem to be the attraction, and it is often seen in the cherry-trees.

When I was in Pomerania last spring with my son and Dr. Gadow, Herr von Putkammer was kind enough to invite us and our friends, Herr von Homeyer and Dr. Holland, to visit a heronry on his estate, on which is a grand old family mansion, surrounded by a moat, in a noble park about ten miles south-east of Stolp. We spent the day among the Herons; and after dinner Herr von Homeyer engaged to pilot us to a beech-forest where the Red-breasted Flycatcher used to breed. The carriage was ordered, and our hospitable host drove von Homeyer, Dr. Holland, and myself through his park to an adjoining estate, where we entered a forest of mixed beech and oak on a hill-side which sloped down to the country-road. We had not proceeded far before we came to the nest of a Spotted Eagle, from which the bird flew as we approached. Leaving our companions to watch the Eagle, Dr. Holland and I set off in quest of the

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* This species probably only winters in Ceylon. Brooks found it in summer at Goond, on the Scind river, in Central Cashmere—*not* in Sindh, as erroneously stated by Dresser in his 'Birds of Europe.' It is somewhat remarkable that it has not been obtained on migration in the intervening country.

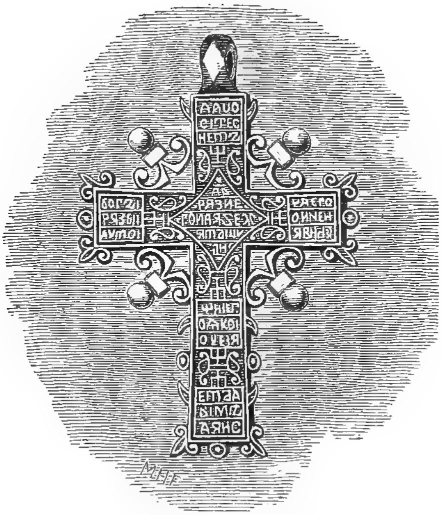
Flycatcher. We soon heard a song which was new to me, but we followed it a long time before we could see the bird. It was a very unobtrusive song, intermediate between the notes of the Robin and the Redstart. For some time the bird kept at the top of the beeches. It was as restless as a Redstart; and we followed it in vain, until, just as the sun was setting, he came down upon the lower branches and sang his simple song within twenty feet of us. We might have mistaken him for a Robin with his red breast, but every now and then he half spread his tail and showed the white on it. A few days later (on the 11th of June) Dr. Holland and I went to a forest beyond Schlave to take the nest of a Honey-Buzzard. In the forest we several times heard the alarm-note of the Red-breasted Flycatcher, a *pink, pink, pink,* something like the *spink* of a Chaffinch, but softer, clearer, and quicker. Our guide showed us presently a nest, scarcely six feet from the ground, in a hollow in the trunk of a beech tree. We caught the bird on the nest. He also showed us a second nest which he had taken a few days before, likewise composed principally of green moss; but it had been built close against the stem of a beech, supported by a bunch of small twigs, which made a convenient shelf for it. In its habits this charming little bird reminds one both of a Flycatcher and a Tit. It catches insects on the wing with ease, and flutters before the trunk of a tree to pick an insect off the bark.

The nest of the Red-breasted Flycatcher is a very handsome little structure, almost entirely formed of green moss, with here and there a few scraps of lichen and a downy feather or two. The inside is sparingly lined with fine dry grass and hairs. The nest-cavity measures about two inches in diameter and one and a half inch in depth. Many of the eggs of this bird very closely resemble Robin's eggs in colour, others as closely the eggs of the Spotted Flycatcher. They are the palest of bluish green in ground-colour, closely freckled with reddish-brown and greyish-brown shell-markings. Some eggs are much greener in general coloration, and the amount of spotting also differs considerably. A clutch of five in my collection are an almost uniform pinkish brown, with scarcely a trace of the ground-colour discernible, and somewhat resemble certain varieties of the Blackcap's eggs. Some specimens have most of the markings confined to a zone round the larger end. The eggs are from five to seven in number, and vary from ·07 to ·06 inch in length, and from ·54 to ·5 inch in breadth.

The Red-breasted Flycatcher has the general colour of the upper parts, except the crown, nape, and sides of the head and neck, which are bluish grey, olive-brown; central tail-feathers blackish brown, the outer ones white at base and broadly tipped with blackish brown; throat and breast orange-chestnut; rest of underparts white, suffused on the flanks and under tail-coverts with buff. Beak brown, paler at the base; irides hazel; legs, toes, and claws dark brown. The female in general coloration resembles the male, except that the rich orange-chestnut throat is replaced by buff, and the bluish grey is wanting on the head and sides of the neck.

Males of the year scarcely differ from the female, and breed in the following spring in immature plumage (*M. minuta*). In the second year the chestnut appears on the throat (*M. leucura*); in the third year the chestnut appears on the upper breast (*M. parva*); and in the fourth year it extends also onto the lower breast, in which plumage they are the *M. hyperythra* of Cabanis *apud* Brooks. Young in first plumage are spotted on the breast and upper parts, as in all the allied species; but this plumage is of course moulted before the birds migrate.

It is needless to say that this bird, like all the rest of its genus, has twelve tail-feathers, though Newton, in his edition of Yarrell's 'British Birds,' represents it as only having *ten*. This is doubtless a misprint; for every ornithologist will admit that Professor Newton compensates his readers for the slowness of his work by its accuracy.



Subfamily SYLVIINÆ, or WARBLERS.

The Warblers and their allies constitute a large group of birds which vary considerably amongst themselves, and approach so near to the allied subfamilies that it is very difficult to give precise characters by which they may in all cases be distinguished. Their more or less distinctly developed first primary serves to distinguish them from all the other subfamilies of the Passeridæ, except the Thrushes, Tits, Shrikes, and Crows. Besides the scutellated tarsus which separates them from the Thrushes, and the absence of the distinct well-marked notch in the beak, which separates them from the Shrikes, they may be distinguished from all these subfamilies (except the Crows) by their having a spring moult in addition to the one in autumn. It is more difficult to give precise characters to separate them from the Crows: but the latter family is composed of birds usually of much larger size—broadly speaking, ranging from the size of a Thrush up to that of a Raven; whilst the Warblers range in size from the dimensions of a small Thrush down to that of a Wren. The Crows are almost omnivorous birds with comparatively stout conical bills; whereas the Warblers are almost exclusively insectivorous, with very slender bills. In this respect they are not distinguishable from the Turdinæ; and, like that subfamily in some genera, the bill is widened to enable them to catch insects on the wing. The rictal bristles are sometimes absent and sometimes present; and the notch in the bill is nearly obsolete. The first primary is always present, but varies from an almost obsolete bastard primary to a well developed first primary. The young in first plumage differ very slightly in colour from the adults, both being generally unspotted above and below, and the difference being confined to the shade or degree of colour, a difference which is generally most conspicuous on the underparts. In the rare instances in which the upper parts are spotted in the adults, the spots are less conspicuous in the young birds. In the first autumn before migration, if a partial moult takes place, it is simply a renewal of certain feathers by feathers of the same colour; so that, in winter, birds of the year are generally easily recognizable by a difference of shade in the colour, especially in that of the underparts. This difference, however, is lost in the complete moult which takes place in both adult and young in spring—a moult which usually occurs in March, sometimes earlier, before the spring migration begins. In autumn, usually in September, shortly before the birds return to their winter quarters, a second annual complete moult takes place in adult birds. The autumn plumage is usually intermediate in colour between the spring plumage and that of the bird of the year.

The Sylviinæ are, so far as is known, confined to the eastern hemisphere, one species only having been known to cross Behring's Straits into Alaska. The Sylviinæ might be again subdivided into three groups :—the migratory Sylviinæ, of which there are about ninety species, principally confined to the Palæarctic Region, with the wings long, pointed, and flat, and the first primary less than half the length of the second ; the non-migratory Sylviinæ, of which there are several hundred species, principally confined to the Æthiopian and Oriental Regions, having rounded concave wings and the first primary more than half the length of the second ; and, lastly, the wide-billed Sylviinæ, of which there are a hundred or more species, inhabiting the tropical portions of the Old World, having, in addition to the wide gape, the rictal bristles very largely developed, both characters being of importance in assisting the birds to catch insects on the wing. About a score species of the Sylviinæ have been found in our islands, belonging to five genera, the British examples of which may be distinguished as follows :—

- *a.* Axillaries yellow.
    - a^1. Bill slender, more or less dark underneath .... PHYLLOSCOPUS.
    - b^1. Bill stout, pale underneath .... HYPOLAIS.
- *b.* Axillaries buff, white, grey, or brown.
    - c^1. Tail nearly even, or, if much graduated, longer than the wing SYLVIA.
    - d^1. Tail with the outside feathers considerably shorter than the central ones ; never longer than the wing.
        - a^2. Outside tail-feathers less than three fourths the length of the longest. No rictal bristles .... LOCUSTELLA.
        - b^2. Outside tail-feathers more than three fourths the length of the longest. Rictal bristles moderately developed. ACROCEPHALUS.

Genus LOCUSTELLA.

The Grasshopper Warblers were originally included by the earliest writers who were acquainted with any of them in the comprehensive genus *Motacilla,* and were afterwards removed from it into the genus *Sylvia* with the rest of the Warblers. When the latter genus was broken up, the Grasshopper Warblers were associated by the elder Naumann with the Reed-Warblers in his genus *Acrocephalus,* in which Prof. Newton still retains them. The recognition of such nearly allied groups of birds as genera or subgenera is a purely arbitrary proceeding. I regret that the genus *Locustella* has been so largely used by modern ornithologists; but it certainly is the most clearly defined of the allied subgenera, and its adoption is perhaps the course which makes the least change in the generally accepted nomenclature. The genus *Acrocephalus* was divided by Kaup in 1829, in that eccentric book of his, 'Natürliches System der Europäischen Thierwelt,' into five genera, of which *Locustella* was described at page 115, the Grasshopper Warbler being designated as the type.

The Grasshopper Warblers comprise a small but well defined group of birds nearly allied to the Reed-Warblers (*Acrocephalus*), agreeing with them in having twelve tail-feathers, and the bastard primary so minute as rarely to extend beyond the primary-coverts, but differing in having a more rounded tail and nearly obsolete rictal bristles. The outside tail-feathers are shorter than the under tail-coverts, except in one instance; but in no case are they more than three fourths the length of the longest. The bill is long and slender, as in the *Calamodine* group of *Acrocephali*, which many of the species further resemble in having the upper parts spotted. The predominant colours are russet-brown and olive-brown.

The Grasshopper Warblers frequent marshy districts, dense thickets near water, reed-beds, and the luxuriant vegetation on the banks of streams. Their nests are usually built amongst rank vegetation on or near the ground; and their eggs are from four to seven in number. So far as is known, all the species have the continuous monotonous note which can scarcely be called a song, and which has given them the name of "Grasshopper" Warblers.

Three of the species breed in Central Europe and winter in North Africa. A fourth breeds in Turkestan and West Siberia and winters in India. Three others breed in East Siberia and winter in the islands of the Malay archipelago; and one of them is said to visit Eastern Europe accidentally on migration, and has occurred during the breeding-season near St. Petersburg. Two species are British, one of which is a regular summer visitant to our islands; but the other, although formerly a regular summer migrant, is now probably extinct or only breeds very sparingly.

LOCUSTELLA LOCUSTELLA.

GRASSHOPPER WARBLER.

(Plate 10.)

Ficedula curruca grisea nævia, *Briss. Orn.* vi. *Suppl.* p. 112 (1760).
Motacilla nævia, *Bodd. Table Pl. Enl.* p. 35. no. 581 (1783).
Sylvia locustella, *Lath. Ind. Orn.* ii. p. 515 (1790); **et auctorum plurimorum**— (*Koch*), *Wolf*, *Vieillot*, *Temminck*, *Meyer*, *Naumann*, *Jenyns*, *Nordmann*, (*Schlegel*), (*Gray*), *Sundevall*, (*Brehm*), (*Keyserling*), (*Blasius*), (*Fleming*), (*Thompson*), (*Harting*), *Macgillivray*, &c.
Muscipeta locustella (*Lath.*), *Koch, Syst. baier. Zool.* i. p. 166 (1816).
Muscipeta olivacea, *Koch, Syst. baier. Zool.* i. p. 167 (1816).
Calamoherpe locustella (*Lath.*), *Boie, Isis*, 1822, p. 552.
Curruca locustella (*Lath.*), *Steph. Shaw's Gen. Zool.* xiii. pt. 2, p. 213 (1825).
Locustella locustella (*Lath.*), *Kaup, Natürl. Syst.* p. 115 (1829).
Calamoherpe tenuirostris, *Brehm, Vög. Deutschl.* p. 440 (1831).
Salicaria locustella (*Lath.*), *Selby, Brit. Orn.* p. 199 (1833).
Locustella sibilans, *Gould, B. Eur.* letterpress to pl. 102 (1837).
Locustella avicula, *Ray, fide Gould, B. Eur.* pl. 103 (1837).
Locustella rayi, *Gould, fide Bonap. Comp. List B. Eur. & N. Amer.* p. 12 (1838).
Sibilatrix locustella (*Lath.*), *Macgill. Br. B.* ii. p. 399 (1839).
Psithyrœdus locustella (*Lath.*), *Gloger, Gem. Handb. Naturg.* p. 298 (1842).
Locustella nævia (*Bodd.*), *Degl. Orn. Eur.* i. p. 589 (1849).
Locustella dumeticola, *Blyth, White's Selborne*, p. 119 (1850).
Parnopia locustella (*Lath.*), *Newt. List B. Eur. Blasius*, p. 11 (1862).
Calamodyta locustella (*Lath.*), *Gray, Hand-l. B.* i. p. 210. no. 2972 (1869).
Acrocephalus nævius (*Bodd.*), *Newton, ed. Yarr. Brit. B.* i. p. 384 (1873).
Threnetria locustella (*Lath.*), *Schauer, Journ. Orn.* 1873, p. 183.

The Grasshopper Warbler appears to have been first described by Willughby and Ray in their 'Ornithologia' in 1676, under the heading of *Locustella avicula*, from information supplied to them by a Mr. D. Johnson, of Brignal, near Greta Bridge, in Yorkshire, possibly the father of Mr. Ralph Johnson, to whom Ray, in his preface, acknowledges that he and Willughby were indebted for much information respecting British birds. They make mention of the spotted back, thighs, and under tail-coverts, and of the very rounded tail, which, together with their allusions to its grasshopper-like note*, leaves no room for doubt that Pennant was perfectly correct in identifying Willughby and Ray's bird with one which he himself received from Shropshire, and described and figured in his 'British Zoology' in 1766, under the name of the "Grasshopper Lark." Two years later Gilbert White of Selborne sent Pennant a very interesting and probably the first correct account published of the habits of this bird; but both the latter ornithologists had been forestalled in their discoveries, not only by Willughby and Ray, but also by Brisson, who, eight years previous to the last-mentioned date, described and figured an unmistakable Grasshopper Warbler from an example obtained in France, and then in the Museum of Mons. Cotelle, under the name of "La Fauvette grise tachetée," a bird which must not be confounded with his "Fauvette tachetée" with a forked tail.

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* Mr. Johnson's letter to Ray is dated 1672, and the habits of the bird described resemble most those of the Wood-Wren; but the bird sent to Ray, if correctly described, is certainly not that species, but the Grasshopper Warbler. Possibly Mr. Johnson confounded the two notes together.

The Grasshopper Warbler is a somewhat local bird in the British Islands; but there is probably no county in England, Wales, Ireland, or Scotland south of the Firth of Forth where it does not breed; and in some places it is found in considerable numbers.

On the continent the range of this bird appears to be very restricted. It is probably confined to Western Europe, is rare in Spain and Italy, but more common in North Europe, south of the Baltic, from France to the neighbourhood of St. Petersburg. It is said to be a winter visitor to Morocco and Algeria; but probably a few remain in these countries to breed; and a few are said to remain during winter in Spain. It has not been recorded from Turkey, Greece, or Asia Minor, nor does it appear to visit Eastern Africa; but it is found to the south-east as far as Transylvania, and occasionally in South-west Russia. In Siberia (and, it is said, as far west as St. Petersburg) it is replaced by a nearly allied species or subspecies *L. lanceolata*, whose range extends across Siberia to the Amoor, and possibly to China. A still more nearly allied form, *L. straminea* (miscalled by many ornithologists *L. hendersoni*), is principally confined to Turkestan during the breeding-season; but its range appears to extend northwards as far as Ekatereenburg, where it touches the range of *L. lanceolata*. It is probable that the latter form may interbreed with both its near allies, as intermediate forms sometimes occur which it is very difficult to determine.

The chief point of interest in the Grasshopper Warbler is its song. This exactly resembles the note of the grasshopper, except that it is slightly louder, not quite so shrill, and somewhat steadier and more prolonged. It is a rapid trill, absolutely monotonous, and is continued from a quarter of a minute sometimes to a couple of minutes without cessation. The Grasshopper Warbler is said to have ventriloqual powers; but I have never noticed any thing of the kind, though the bird is common enough in the neighbourhood of Sheffield, and I have listened to its song at all hours, from before dawn to long after sunset. I have never had the slightest difficulty in following the *direction* of the sound. It is not always easy to judge of the *distance*; but as much may be said of all sounds. I doubt if it varies much in the loudness of its note, which sounds distant when the bird buries itself in the deep grass or other foliage, and near when it runs up some stalk and takes a look round, as it frequently does in early morning.

It is certainly one of the most skulking birds which visit this country, almost as much so as a Corncrake or a Water-Rail. It is rarely seen on the wing, and seldom perches on a tree. I have followed it for hours backwards and forwards from one clump of underwood to another, rarely obtaining a sight of the bird, but always able to trace its whereabouts from its song. Very often it left the underwood altogether and frequented the long grass, and it was only occasionally that it was possible to see the bird. So retiring is the Grasshopper Warbler in its habits, that were it not for the peculiarity of its song it would be passed by without notice by the great majority of naturalists. The song is first heard in Yorkshire early in May; but in the south of England the bird arrives somewhat earlier at its breeding-quarters. Gilbert White gives the date as the middle of April. It is consequently, if not the latest bird of passage to arrive on our shores, one of the last batch of spring migrants. It by no means confines itself to swampy places, and is equally abundant on dry open commons amongst the furze bushes and in woods where there is plenty of underwood. Occasionally it is also heard from the tall heather on the grouse-moors. Whenever I have accidentally seen it on the wing its flight has been very peculiar, what might be described as a frightened flight, fluttering over every bush, descending into every hollow—apparently anxious every moment to dive into some thick shelter, and consequently always having its tail depressed and half-spread so as to be ready to alight at a moment's notice as soon as an opportunity offered. On the ground it runs like a Sandpiper, dodging in and out between the clumps of grass with marvellous celerity.

The Grasshopper Warbler is no doubt almost entirely insectivorous; but it probably regales itself in autumn on some of the soft fruits which abound in the localities which it frequents, a practice common to most if not all soft-billed birds.

The following notes respecting this charming bird are from the pen of my friend Mr. A. W. Johnson, who has had an excellent opportunity of observing it in the neighbourhood of Newcastle:—"This interesting Warbler is fairly abundant during the breeding-season within a radius of fifteen miles of Newcastle; and in a few favourite situations it is frequently found in very considerable numbers. It is especially numerous in the county of Durham, perhaps in no locality more so than in the warm and sheltered valley of the Derwent. This valley in parts is well studded with young plantations, where the undergrowth is thick and rank, the ground well exposed to the sun, and concealment for bird and nest good. Such situations as these are the most attractive, as the great number of nests found in them testify. The number of birds breeding here appears to vary very much in different years. Some seasons considerable numbers breed here; and then for one or two years they are comparatively scarce. The years 1879 and 1880 were what may be termed *good* seasons, many nests being found; whilst 1881 and 1882 were *poor* seasons, the number of nests being found was less than half as many as were taken in the two preceding years. The number of nests taken one season does not seem to affect the number found the following one; and comparatively few nests all together are taken, for the difficulty in discovering them is so great. Besides the plantations already referred to as this bird's breeding-grounds, many nests are found in the bottoms or sides of thick hedgerows. During the season of 1880, of seven nests found by myself the last week in May, five were in young plantations (three nests in one and two in another), whilst the others were in hedgerows. The situation usually chosen for the nest is on the ground or close to it in a thick tuft of dead rank grass, and well concealed. Sometimes, however, this is not the case, and after flushing the bird but little search is needed to discover the nest. I have found the nest built on the ground at the foot of a young larch, and, without moving any of the herbage, the eggs were plainly visible as soon as the bird flew off. The nest is also often placed under a whin bush, and is then sometimes very difficult to find. The sitting bird usually flies off the nest very quietly when flushed, and drops into the underwood at once. One instance, however, came under my notice, where the bird flew up and over some tall trees; and if the eggs are hard sat, or the nest contains young, the bird comes stealing back in and out amongst the grass like a mouse, and will approach within a few yards. The number of eggs laid varies from three to seven: the usual number is five or six (very many of the nests found in May or early in June contain six); and seven is *very* rarely found. The earliest full clutch of eggs I have was taken on the 14th of May. The usual time, in an ordinary season, for the first nests containing a full complement of eggs is from the 20th to the 28th of May; but many nests are found with fresh eggs up to the 10th or 14th of June. Two broods appear to be reared in the season, as fresh eggs may be found in the last week of June, and sometimes even in July. Should the nest be taken, the bird will frequently build another, sometimes within a few yards of the first. One or two clutches of the eggs of this bird in my collection have a distinct and well defined band or zone of dark spots round the larger end; another has streaks dispersed over the eggs, similar to a Bunting's; whilst those of another clutch are of a uniform pale brown colour without spot or streak."

I have taken the nest of the Grasshopper Warbler near Brighton. It appears to be a late breeder, and is scarcely likely to have more than one brood in the year. On the 21st of May, two years ago, Swaysland sent me up two nests of this bird, one containing six and the other five eggs. At the same time he informed me of a third nest which then contained only two eggs. On the 28th I went down to Brighton to see it. About half a mile from Hassock's Gate station is a small plantation. Most of the elms had then been cut down, leaving an underwood of nut-trees interspersed with small shrubs of various kinds and tangled vegetation of all sorts. Beyond the wood we looked over a farm onto the downs, behind which was the sea. The nest was about fifty yards from the gamekeeper's cottage, in the middle of the plantation, and was so admirably concealed that, standing over the clump of grass in which it was placed, which was not more than about two feet high, and was mixed with a few wild-rose briars, we could not trace the slightest appearance of any thing of the kind, and only caught a momentary glimpse of the bird as she glided away from the clump. The nest was placed in the centre of a bunch of long coarse grass, which raised it perhaps six inches above the actual level of the ground. It was round, compact, and rather deep, the outside woven principally of green moss mixed with a few dead leaves and a little dry grass. The lining was entirely dry, slender, round grass-stalks. It contained six eggs. We arranged the grass so that we could just see the nest, and left the place, returning again in about ten minutes. In order to get a better sight of the bird, we approached the nest from different sides, and saw her slip off and glide like a mouse through the grass, until she came very near one of us, when she took wing for about a yard, flying with depressed outspread tail, and again took to the grass. A quarter of an hour afterwards we again stole cautiously to the place, and saw her on the nest. On our still nearer approach she slipped off the eggs and ran about at our feet, threading her way in a zigzag course through the grass exactly like a mouse. We never heard her utter a note; but, according to Naumann, the call-note of the Grasshopper Warbler must be a *tic, tic,* something like the sound produced by knocking two stones together. In another wood, where the elms were still standing, the gamekeeper showed us the place where one of the other nests had been. It was in a slightly open part of the wood, in a similar clump of grass and rose-briars.

The ground-colour of the eggs of this bird is a pale pinkish white, generally profusely spotted all over with small rufous-brown spots or dots interspersed with paler and greyer underlying spots of the same character. In most eggs the spots are slightly larger towards the large end of the egg, and sometimes very decidedly so. Occasionally the overlying spots are sparsely distributed, and in some instances they are almost absent altogether. Not unfrequently irregular short and thin hair-lines of very dark rufous-brown are observable. The eggs vary in length from ·75 to

·7 inch, and in breadth from ·55 to ·5 inch. The number ranges from four to seven.

The general colour of the upper part of this bird is olive-brown, but sometimes it approaches russet-brown; each feather has an obscure dark centre, which becomes nearly obsolete on the sides of the neck and on the longest upper tail-coverts. The outer webs of the quills and tail-feathers are edged with olive-brown, most conspicuously so on the innermost secondaries. The chin and the centre of the belly are nearly white, which shades into buffish brown on the breast, flanks, thighs, and under tail-coverts, most of the latter having dark brown centres. Bill dark brown above, pale horn colour below; legs, feet, and claws pale brown; irides hazel.

In birds of the year the whole of the underparts are more or less suffused with yellow, and many of the feathers of the throat and flanks have dark centres. A slight tinge of yellow on the underparts, and some of the pectoral streaks are frequently found in young birds after their first spring moult.

It is very difficult to form a diagnosis which may always distinguish the Grasshopper Warbler from its two very near allies; but *L. straminea* appears always to have a more rounded wing than the other two. The second primary is always shorter than the fourth, and frequently shorter than the fifth; whilst in the other two species it is sometimes equal in length to the third and sometimes only to the fourth, but is never shorter than the fourth. *L. lanceolata* may usually be distinguished by having the general colour of the upper parts russet-brown instead of olive-brown; but in a large series the most russet examples of *L. locustella* are undistinguishable in colour from the least russet examples of *L. lanceolata.* As regards the spotting on the under surface, the breast is generally spotted in *L. lanceolata* and occasionally slightly so in the other two species. The flanks are spotted sometimes in *L. locustella,* generally in *L. straminea,* and always in *L. lanceolata*; whilst the under tail-coverts are always spotted in *L. straminea,* and generally so in the other two species.

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LOCUSTELLA LUSCINIOIDES.

SAVI'S WARBLER.

(PLATE 10.)

Sylvia luscinioides, *Savi, Nuovo Giornale dei Letterati*, vii. p. 341 (1824); **et auctorum plurimorum**—*Temminck*, (*Gould*), *Nordmann*, (*Gray*), (*Schlegel*), (*Salvadori*), (*Newton*), (*Dresser*), *&c.*
Locustella luscinioides (*Savi*), *Gould, B. Eur.* ii. pl. 104 (1837).
Pseudoluscinia savii, *Bonap. Comp. List B. Eur. & N. Amer.* p. 12 (1838).
Salicaria luscinioides (*Savi*), *Keys. u. Blas. Wirb. Eur.* pp. liii, 180 (1840).
Lusciniopsis savii (*Bp.*), *Bonap. Ucc. Eur.* p. 36 (1842).
Calamodyta luscinioides (*Savi*), *Gray, Gen. B.* i. p. 172 (1848).
Cettia luscinioides (*Savi*), *L. Gerbe, Dict. Univ. d'Hist. Nat.* vi. p. 240 (1848).
Calamoherpe luscinioides (*Savi*), *Schl. Vog. Nederl.* p. 149 (1854).
Lusciniola savii (*Bp.*), *Bonap. Cat. Parzud.* p. 6 (1856).
Locustella savii (*Bp.*), *Salvin, Ibis*, 1859, p. 356.
Lusciniopsis luscinioides (*Savi*), *Newt. List B. Eur. Blasius*, p. 11 (1862).
Pseudoluscinia luscinioides (*Savi*), *Shelley, B. Egypt*, p. 89 (1872).
Acrocephalus luscinioides (*Savi*), *Newton ed. Yarr. Brit. B.* i. p. 389 (1873).
Cettia fusca, *Severtz. Turkest. Jevotn.* pp. 66, 131 (1873).
Sylvia (Threnetria) luscinioides (*Savi*), *Schauer, Journ. Orn.* 1873, p. 161.
Threnetria acheta, *Schauer, Journ. Orn.* 1873, p. 183.
Potamodus luscinioides (*Savi*), *Blanf. East. Pers.* ii. p. 199 (1876).

Savi's Warbler has every claim to be included in a work on British Birds, though it is in all probability extinct in our islands. The marshes where it formerly bred have been to a great extent drained; and nothing has been seen of this interesting bird in its old localities during the last five-and-twenty years. So far as is known, the first Savi's Warbler ever obtained was shot ten miles south-east of Norwich, about the year 1819. Temminck pronounced the bird to be a variety of the Reed-Warbler, and afterwards seems to have confounded it with Cetti's Warbler. Savi did not describe the species until five years later; and it cannot be said to have become generally known until Temminck published his Manual of Ornithology in 1835. Many examples of Savi's Warbler, as well as nests and eggs of this bird, were obtained at various dates from 1843 to 1856 in the fens of Norfolk and Cambridge and in one or two other adjoining counties. It is not known that Savi's Warbler has occurred in any other district in the British Isles.

On the continent the distribution of this species is also somewhat restricted, though in many localities it is a common bird. It is never found except in reed-beds; but in most places where these occur of sufficient size, in Spain, the south of France, Holland, Italy, Austria, and

South Russia, it has been found. It appears to be equally common in suitable localities in North Africa, and has been obtained in Palestine; but so far as is known it is entirely absent from North Europe, and also, strange to say, from Germany, Turkey, Greece, Asia Minor, and the Caucasus. In the northern portion of its range it is strictly a migratory bird; but it is said to remain during the winter in the delta of the Rhone, and a considerable number undoubtedly remain in North Africa to breed. In the delta of the Volga, the Kirghis steppes, Western Turkestan, and Persia examples of Savi's Warbler have been obtained; but the few that I have seen in the collections of Hencke and Severtzow, instead of being of a rich russet-brown on the upper parts (the colour of ground coffee), were of a more pinky earth-brown (the colour of chocolat-au-lait). Spanish examples in nestling plumage of Savi's Warbler are similar in colour, but somewhat darker. Severtzow described the Turkestan birds as new, under the name of *Cettia fusca* (not *Cettia fulva*, as I erroneously stated in my paper on the Birds of Astrakhan in 'The Ibis' for 1882, p. 213); but he afterwards identified them with Savi's Warbler. It will be an interesting problem for future travellers to solve, whether young birds retain the colour of the nestling plumage beyond their first spring moult until their first autumn moult, and whether the examples hitherto obtained of this species east of the Black Sea have only been birds of the year, or whether these forms are specifically or subspecifically distinct. It is possible that Savi's Warbler originally came from Turkestan, and originally had the colour which the Turkestan birds may still retain, and that a long residence in Europe, where the rainfall is so much greater, has directly or indirectly caused the colour of adult birds to become so much more russet, the original colour being still retained in the young in first plumage.

Savi's Warbler appears to bear the same relation to the Grasshopper Warbler that the Reed-Warbler does to the Sedge-Warbler. In each case the uniformly coloured bird is almost entirely confined to the uniformly coloured reeds, whilst the spotted bird principally frequents the rank herbage, whose foliage is much more variegated. If there is any mutual relationship between these facts, it would be difficult to say which is cause and which is effect. The plain-backed birds may have been exterminated from the variegated swamps, because the spotted plumage of the allied species gave them a slight advantage in the struggle for existence; or all four species may originally have had spotted backs, but those which lived in the reeds may gradually have lost their spots to accommodate themselves to their surroundings.

Savi's Warbler arrives at the reed-beds of Galicia during the first week in May; but in the south of Spain it must arrive much earlier, since Col. Irby obtained eggs in Andalusia on the 4th of May. He states, however, that the birds were all gone by September; so that possibly it may be only exceptionally that it winters in the south of France. It must, however, be remembered that birds of such skulking habits may easily be overlooked after they have ceased to sing. Although most observers agree that Savi's Warbler is by no means so shy as its two European allies, the Grasshopper Warbler and the River-Warbler, yet it seems only to frequent large reed-beds, and can rarely be seen except from a boat or by wading in the marshes. Although it drops down into the sedges for concealment if pursued, it seems to avoid the sedges and other water-plants when feeding, and is seldom seen perched except upon the reeds. It runs up one of these, searching for insects on the stem and leaves, then drops down onto another, up which it runs in like manner, never still for a moment except when it pauses to sing on the top of a reed, where, with outstretched neck, head somewhat thrown back, and extended throat, it runs off its monotonous reel, whence it has been called the Reel-bird (in Dutch *Sworr*, in German *Schwirrvogel*).

The song of Savi's Warbler is said to resemble the note of the tree-frog. It is a monotonous whirr or trill, like the note of a grasshopper, and is described as more melodious but less powerful than that of the other two European Grasshopper Warblers. It is pitched in a higher key than either of them, and sounds further or nearer as the bird turns its head from or towards the listener. It may be heard at all hours of the day or night in calm warm weather; but on cold nights the bird is silent, and in windy weather it either does not sing at all or its voice is drowned by the rustling of the reeds. Its call-note is described as a short *krr*. It is said to be a very quarrelsome bird, and frequently to chase so eagerly any rival which may invade its domain as to be at such times regardless of danger. In Andalusia it breeds early in May; but in this country, in Holland, and in Galicia it is recorded to have bred late in May or early in June. Graf Casimir Wodzicki, describing its habits in the latter country (Journ. Orn. 1853, Extra-Heft, p. 49), writes:—"I have often watched this delicate little bird building its nest, and noticed with what trouble it collects the materials. At first both sexes are thus employed; but later the female alone collects the leaves, which the male takes from her beak and arranges without her assistance." The nest is carefully concealed amongst the sedges (*Carex*), and is placed upon a heap of tangled blades, usually six inches, but sometimes two or three feet, above the water. It is composed of flat leaves of broadish grass, generally of sweetgrass (*Glyceria*), carefully woven together, the narrowest leaves being chosen for the lining. It is a marvellously neat structure, very deep, sometimes deeper than the inside diameter. Graf Wodzicki says that "an inexperienced ornithologist would take it for a nest of the Little Crake, so exactly similar is it, only smaller." He also states that both male and female sit on the nest, and allow themselves to be watched without leaving it. If frightened off, they soon return. During the breeding-season Savi's Warbler is rarely seen on the wing; but early in spring it sometimes flies up from the reeds and dives down into them again with wings laid back. It is said not to sing on the wing. When it does take wing its flight is said not to be undulating, but with continuous beats of the wing, like the flight of a Wren or a hawk moth. It is not known that Savi's Warbler feeds upon any thing but insects and their larvæ.

The eggs vary in number from four to six. They are French white or pale buff in ground-colour, thickly sprinkled over the entire surface with ashy-brown spots, most numerous at the larger end of the egg, where they usually form an obscure zone. The pale violet-grey underlying markings are numerous; and on some eggs there are a few very dark, irregular, hair-like streaks. In many specimens the indistinct zone of colour is largely composed of underlying spots, giving the eggs a scarcely perceptible pink appearance in this part. The eggs of Savi's Warbler somewhat closely approach those of the Grasshopper Warbler, but are always browner. From certain varieties of the eggs of the allied *L. fluviatilis* they are absolutely undistinguishable. They vary in length from ·8 to ·75 inch (Professor Newton gives a measurement of ·84), and from ·6 to ·55 inch in breadth.

Savi's Warbler has the general colour of the upper parts uniform russet-brown, slightly duskier on the quills, and somewhat paler on the outside web of the second primary. The underparts are pale buffish brown, shading into nearly white on the throat and the centre of the belly; the under tail-coverts are pale chestnut, with obscure paler tips. Bill dark brown above, pale horn-colour below; legs, feet, and claws pale brown; irides hazel. It is not known that the sexes differ in plumage, or that the autumn moult produces any change of colour. Birds of the year are said to be less rufous on the upper parts and paler underneath.

Savi's Warbler may be distinguished from its near ally *L. fluviatilis* by its russet-brown upper parts (which in that species are olive-brown), and by the absence of the striations on the breast so conspicuous in the latter species.

Genus ACROCEPHALUS.

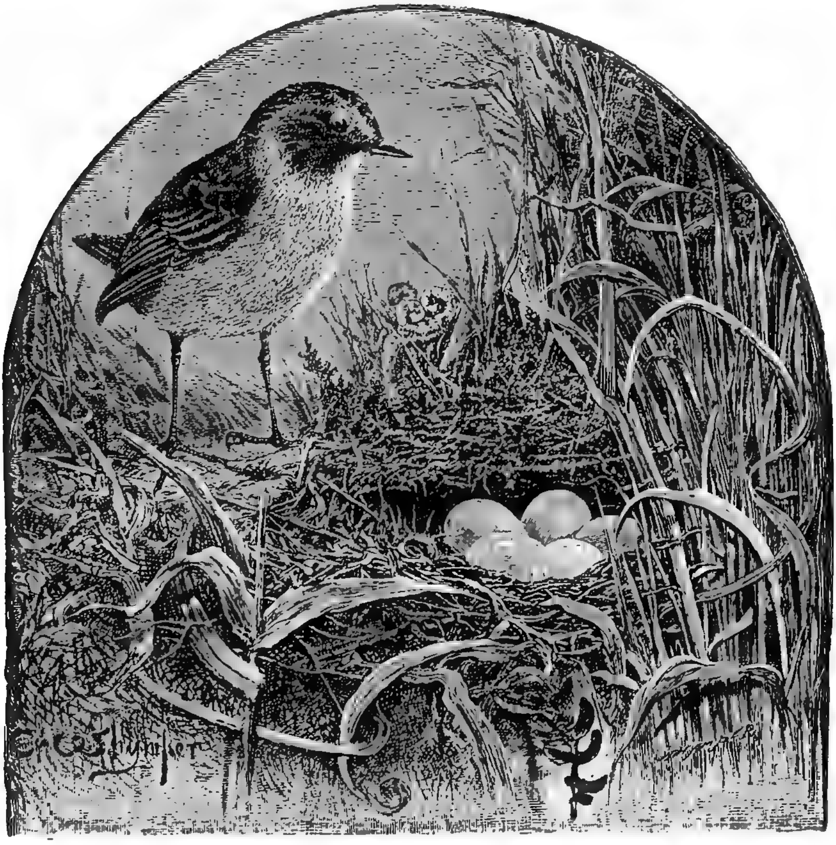
The Reed-Warblers were included by Linnæus in his extensive genus *Motacilla*, and were afterwards removed by Scopoli, along with the other Warblers, into his genus *Sylvia*. The elder Naumann was the first to subdivide Scopoli's genus; and in 1811, in the Supplement to his 'Naturgeschichte der Land- und Wasser-Vögel des nördlichen Deutschlands und angränzender Länder,' p. 199, he founded the genus *Acrocephalus* for the Reed-Warblers, and placed *A. turdoides* first on his list. This bird, which is a fairly representative example of the genus, may therefore be accepted as the type.

The Reed-Warblers are a well-marked group of birds, distinguished by the possession of a very minute bastard primary and a moderately rounded tail. The bastard primary is so minute that in adult birds it does not usually extend as far as the primary-coverts; but in birds of the year, and in one or two species slightly aberrant in this respect, it is usually somewhat longer, occasionally extending beyond them. The bill is typically large, depressed and broad at the base, with moderately developed rictal bristles. In two of the species the bill is somewhat aberrant, being as slender as in the genus *Locustella*. These two species are also distinguished by a different style of colouring, each feather on the head and back being darker in the centre. The existence of two other intermediate species, however, makes it advisable not to separate them more than subgenerically from the typical *Acrocephali*, of which they form the *Calamodine* group.

The tail is more rounded than in *Hypolais*, and much more so than in *Phylloscopus*, but not so much so as in *Locustella*, the outside tail-feathers being longer than the under tail-coverts. The general colour of the plumage is a more or less uniform brown, sometimes olive-brown, sometimes russet-brown, gradually fading, as the plumage becomes abraded, into a neutral brown or dust-brown, not inaptly described as *museum*-colour.

The Reed-Warblers, as their name implies, frequent marshy districts, reed-beds, and the dense vegetation on the banks of still waters. They are possessed of considerable powers of song. They build well-made open nests, sometimes suspended over the water, attached to reeds or twigs, and sometimes in the bushes; and their eggs are from four to six in number. Their food is principally insects.

The breeding-range of these Warblers extends over the whole of the Central and Southern Palæarctic Region; and one species is found as far north as the Arctic circle. They winter in the tropical regions of Africa and Asia, and are especially common at that season in the islands of the Malay archipelago. Two species apparently migrate south instead of north to breed, and resort to the swamps of Australia for that purpose. Seven other species appear to be non-migratory—one having found a permanent home in South Africa, and the others in the islands of the Pacific, from the Carolines in the west to the Marquesas in the east of that ocean. Five species are regular summer visitors to Europe; and the range of two others extends as far as the extreme south-east of Europe. Three of these breed in the British Islands, and two are accidental visitors.



WHINCHAT'S NEST.

ACROCEPHALUS PHRAGMITIS *.

SEDGE-WARBLER.

(PLATE 10.)

? Ficedula curruca sylvestris, *Briss. Orn.* iii. p. 393 (1760).
? Motacilla schœnobænus, *Linn. Syst. Nat.* i. p. 329 (1766).
Motacilla salicaria, *Linn. apud Tunst. Orn. Brit.* p. 2 (1771).
Sylvia salicaria (*Linn.*) *apud Lath. Gen. Syn. Suppl.* i. p. 287 (1787).
? Sylvia schœnobænus (*Linn.*), *Lath. Ind. Orn.* ii. p. 510 (1790).
Sylvia phragmitis, *Bechst. Orn. Taschenb.* p. 186 (1802); **et auctorum plurimorum**—*Wolf, Temminck, Naumann, Ménétriés, Jenyns, Eversmann, Nordmann,* (*Koch*), (*Boie*), (*Brehm*), (*Macgillivray*), (*Schlegel*), (*Kaup*), (*Selby*), (*Gould*), (*Keyserling*), (*Blasius*), (*Thompson*), (*Lindermayer*), (*Harting*), (*Bonaparte*), (*Degland*), (*Gerbe*), (*Loche*), (*Salvadori*), *&c.*
Acrocephalus phragmitis (*Bechst.*), *Naum. Nat. Land- und Wass.- Vög. nördl. Deutschl.*, Nachtr. iv. p. 202 (1811).
Muscipeta phragmitis (*Bechst.*), *Koch, Syst. baier. Zool.* i. p. 163 (1816).
Sylvia schœnobænus (*Linn.*), *Vieill. Faun. Franç.* i. p. 224 (1820).
Calamoherpe phragmitis (*Bechst.*), *Boie, Isis,* 1822, p. 552.
Curruca salicaria (*Linn.*), *apud Fleming, Brit. An.* p. 69 (1828).
Calamodus phragmitis (*Bechst.*), *Kaup, Natürl. Syst.* p. 117 (1829).
Calamoherpe tritici, *Brehm, Vög. Deutschl.* p. 449 (1831).
Calamoherpe schœnobænus (*Linn.*), *Brehm, Vög. Deutschl.* p. 450 (1831).
Salicaria phragmitis (*Bechst.*), *Selby, Brit. Orn.* i. p. 201 (1833).
Calamodyta phragmitis (*Bechst.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 12 (1838).
Calamodyta schœnobænus (*Linn.*), *Gray, Hand-l. B.* i. p. 209, no. 2964 (1869).
Acrocephalus schœnobænus (*Linn.*), *Newton, ed. Yarr. Brit. B.* i. p. 376 (1873).
Calamodus schœnobænus (*Linn.*), *Blanf. East. Pers.* ii. p. 199 (1876).

Although there can be no doubt that Linnæus was acquainted with the Sedge-Warbler, yet his diagnoses are so vague that it is impossible to say whether he intended to designate it by the name of *Motacilla schœnobænus* or *Motacilla salicaria*—Vieillot, Sundevall, Brehm, and Newton identifying it with the former, and Tunstall, Donovan, Latham, Leach, Forster, and Fleming with the latter. The first clear definition seems to have been that of Pennant, who described and figured the bird in 1766 under the name of the

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* In my opinion no possible good can arise, and much confusion must be caused, by rejecting the name in common use for the Sedge-Warbler, which was well defined by Bechstein, in favour of the ill-defined name supposed to have been given to it by Linnæus. I admit that the evidence of the 'Fauna Suecica' leaves little room for doubt that Linnæus intended to describe the Sedge-Warbler; but his description was so meagre that it met with the neglect that it deserved.

Willow-Lark, although Gilbert White appears to have unwittingly done his best to confuse him by confounding the Reed-Warbler with the Sedge-Warbler*. Pennant, however, was indebted to White for a correct description of the habits of the bird, which fortunately do not differ much from those of its ally.

This now well-known bird is a common summer visitor to all parts of England, breeding more or less abundantly in every county. In his 'Birds of Guernsey,' Mr. Smith states that it is local and by no means so common as the Reed-Warbler. In Scotland it is a very abundant species, especially in the western counties, from Wigtown to the north of Argyle; and it is not uncommon in Western Inverness and Sutherland. It becomes more local in the Western Islands, being found in Mull and Islay, but is apparently absent from the Outer Hebrides. In Ireland the bird is equally common and widely distributed.

On the Continent the Sedge-Warbler has a somewhat extensive range, being found in Norway as far north as lat. 70°, in Sweden and North Russia to lat. 68°, and in the valleys of the Obb and the Yenesay to lat. 67°. Its extreme abundance in the latter valley makes it very probable that it may occur still further to the east in the valley of the Lena. In the south of Europe it is principally known as passing through on migration; but it is said occasionally to remain to breed in Spain, the south of France, Italy, and Greece. In Corfu and Crete Colonel Drummond Hay states that it is a resident. In Algeria, Egypt, and Asia Minor it is principally known as a winter visitor; but a few probably also remain in these localities to breed, as Dixon shot it in the oasis of Biskra in Algeria in May. Canon Tristram states that it breeds in Palestine; and Bogdanow saw it in the Caucasus in autumn. It does not appear to have occurred in Persia; but it is found in North-west Turkestan. It is perhaps more abundant in Russia than in any other country, and is generally distributed throughout the rest of Europe; but, curiously enough, it is said not to occur in South Norway and in Lombardy—two localities apparently well suited to its requirements. Its winter range extends far down into South Africa, as it has been obtained in Damara Land and the Transvaal. I have in my collection two skins from Potchefstrom, in the latter district, one dated February and the other dated 18th of April, both of which are moulting their quill feathers.

The Sedge-Warbler arrives in its breeding-haunts by the latter end of

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* It is remarkable that such an accurate observer as Gilbert White should have confused two such distinct birds together. His description, "head, back, and coverts of the wings of a dusky brown, without those dark spots of the Grasshopper Lark," can only apply to the Reed-Warbler; but his further remark, "over each eye is a milk-white stroke," must surely apply to the Sedge-Warbler.

April, its appearance usually being noted a little earlier in the southern than in the northern counties. In Ireland it appears to arrive even later still. Thompson states that it appears in the neighbourhood of Belfast during the first ten days of May, but he has known it to arrive as early as the 16th of April. It would also appear to depart in the autumn earlier from Ireland, the same careful writer giving the 5th of September as the latest date he has known it to be met with; but in England it remains until the end of September, and has even been met with in Norfolk on the 20th of October.

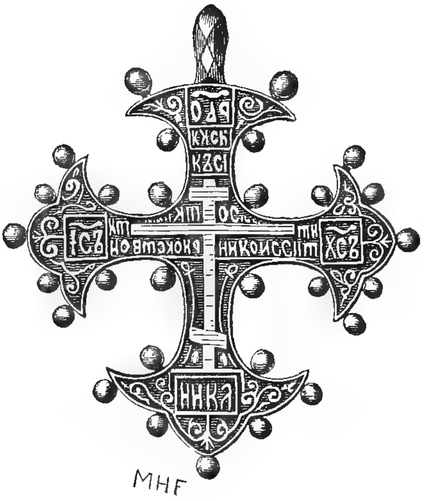
The Sedge-Warbler is by no means, as its name would possibly suggest, confined to the sedges and the reeds. Its haunts are as much in the tangled brake and dense vegetation of marshy plantations as amongst the ever-murmuring reeds. It is especially fond of frequenting the stunted willow-bushes by the water-side. The Sedge-Warbler is much more often heard than seen. Like all the Reed-Warblers it is a shy and retiring little bird, although now and then its curiosity seems to get the better of its habitual shyness, and prompts it to mount to the top of some waving spray to take a more extensive view of the world than can be obtained from the seclusion of its shady haunt. Sometimes a hurried glimpse of it may be got as it hops rapidly from one twig to another; but it soon disappears again, and its harsh notes are the only sign of its presence. Although such a skulking little fellow, the Sedge-Warbler may always be detected by its song. If it is not actually to be seen, a stone thrown into its favourite retreat will rouse it from its reverie, and cause it to start its song at once—a song of seeming defiance and mockery, as though the cunning little musician knew full well that it was able to elude detection at will. When thus aroused it will often mount to the top of the bushes and, for a few moments, warble forth its lay in full view, shifting restlessly about in the meantime as if fearful of its own boldness.

The song of the Sedge-Warbler is most pertinaciously kept up. It somewhat resembles that of the Whitethroat, but has a much larger range of notes. It is quite as vehemently uttered. Some of its notes are round, full, and rich; but many parts of the song are almost as harsh as the notes of the House-Sparrow. The Sedge-Warbler will also appear to imitate the songs of other birds, and varies its own performance so as often to make the hearer imagine that it is introducing the notes of its neighbours. It not unfrequently sings as it flies; and it is also one of the few feathered musicians that regularly warble at night. In Ireland this habit has gained for the bird the title of "Irish Nightingale;" but the music of that sweet chorister is beyond all comparison finer than the "Sedge-bird's" garrulous song. In the pairing-season especially, it sings so loudly as to often appear but a few feet from the observer when in reality it is in the depth of its cover many yards away. The call-note is a harsh *churr* rapidly repeated; and its alarm-note is a scold something like that of the Whitethroat.

The nesting-season of the Sedge-Warbler commences early in May. Its nest is never suspended between the reeds like the Reed-Warbler's, but is supported by the branches. The site is varied a little, according to the nature of the haunts it frequents. On the broads and in marshy places the bird usually selects some convenient place in the willow bushes. In other haunts the nest is often placed in the thick branches of a hedge near a stream; at other times the brambles growing in wild confusion in its marshy haunts, or the bushes and woodbine drooping over the water, will be selected to hold it. Few of our British nests are so unassuming as the Sedge-Warbler's. It is a small and simple little structure, not very deep, made of dry grass-stems, portions of sedgy plants, sometimes lined with a few hairs, sometimes with scraps of vegetable down. It is sometimes placed as much as ten feet from the ground, but more frequently at a height of one or two feet, and rarely on the ground itself. Writing of the nest in the latter situation, Mr. Stevenson, in his 'Birds of Norfolk,' states:—"I have also found it in some few instances in a little hollow on the ground, but so concealed amongst the surrounding moss as to be discoverable only by the bird rising frightened from the spot. Again amongst the sedges, as its name denotes, it seeks concealment in the treacherous nature of the soil, and the nests may be there found supported, but not *suspended,* on the dead weed and leaves of the sedge broken down." The eggs of the Sedge-Warbler are five or six in number, and differ considerably in colour. For the sake of convenience it is perhaps best to divide them into two types, very distinct from each other, but connected together by intermediate varieties. The ground-colour of both types, when it can be seen (which is not often), is bluish white. The first type is stone-colour, with pale and indistinct mottlings of yellowish brown. The second type has the same buffish appearance, but the markings are very much more pronounced and of a richer brown, in some specimens deep red-brown. Almost all eggs of the Sedge-Warbler, of both types, are also marked with fine scratchy streaks of rich blackish brown; on some eggs these pencillings are not continuous and can scarcely be traced; in others they are almost as pronounced as the marks on a Bunting's egg. They vary in length from ·75 to ·6 inch, and in breadth from ·55 to ·5 inch.

The food of the Sedge-Warbler is largely composed of insects, which it may often be seen catching in the air whilst fluttering over the waters and reeds. It also feeds upon worms; and Naumann states that it will eat elder-berries.

The Sedge-Warbler has the general colour of the upper parts russet-brown, each feather having an obscure dark centre. These dark centres are most conspicuous, becoming nearly black on the head, wing-coverts, and innermost secondaries, and disappear altogether on the rump, which is very tawny. The eye-stripe is very distinct, buffish white, but does not extend to the nape. The underparts are buffish white, darkest on the breast and flanks. After the autumn moult the eye-stripe and the underparts are still more suffused with buff. After both moults, but especially in spring, the whitish tips to the quills are very conspicuous; but these are soon lost by abrasion. Bill dark brown above, pale below; legs, feet, and claws pale brown; irides hazel.



ACROCEPHALUS AQUATICUS.

AQUATIC WARBLER.

(Plate 10.)

? Sylvia schœnobænus (*Linn.*), *apud Scop. Ann. I. Hist. Nat.* p. 158 (1769).
? Motacilla aquatica, *Gmel. Syst. Nat.* i. p. 953 (1788, *ex Scop. et Lath.*).
? Sylvia aquatica (*Gmel.*), *Lath. Ind. Orn.* ii. p. 510 (1790).
Sylvia salicaria (*Linn.*), *apud Bechst. Orn. Taschenb.* p. 185 (1802).
Acrocephalus salicarius (*Linn.*), *apud Naum. Nat. Land- u. Wass.-Vög. nördl. Deutschl., Nachtr.* Heft iv. p. 203 (1811).
Sylvia aquatica (*Gmel.*), *Temm. Man. d'Orn.* p. 131 (1815); **et auctorum plurimorum**—(*Naumann*), (*Gould*), (*Gray*), (*Schlegel*), (*Salvadori*), (*Newto* (*Dresser*), *&c.*
Muscipeta salicaria (*Linn.*), *apud Koch, Syst. baier. Zool.* i. p. 164 (1816).
Sylvia paludicola, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 202 (1817).
Sylvia cariceti, *Naum. Isis*, 1821, p. 785.
Calamoherpe aquatica (*Gmel.*), *Boie, Isis*, 1822, p. 552.
Calamoherpe cariceti (*Naum.*), *Boie, Isis*, 1822, p. 552.
Calamodyta aquatica (*Gmel.*), *Kaup. Natürl. Syst.* p. 118 (1829).
Calamoherpe limicola, *Brehm, Vög. Deutschl.* p. 451 (1831).
Calamoherpe striata, *Brehm, Vög. Deutschl.* p. 452 (1831).
Salicaria aquatica (*Gmel.*), *Gould, B. Eur.* ii. pl. iii. fig. 2 (1837).
Calamodyta cariceti (*Naum.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 12 (1838).
Calamodus salicarius (*Linn.*), *apud Cab. Mus. Hein.* i. p. 39 (1850).
Acrocephalus aquaticus (*Gmel.*), *Newton, ed. Yarr. Brit. B.* i. p. 380 (1873).

As long ago as 1822 the Aquatic Warbler must have been known to British ornithologists; for Mr. J. H. Gurney, jun., has pointed out ('Trans. Norfolk and Norwich Nat. Soc.' 1871, p. 62) that the figure of the "Sedge-Warbler" in Hunt's 'British Ornithology' was evidently taken from an example of the present species. At least three other specimens have been recorded as British. Professor Newton discovered an example in the collection of Mr. Borrer, and exhibited it at a meeting of the Zoological Society ('Proc. Zool. Soc.' 1866, p. 210), with the following note from its possessor:—"My specimen was shot on the 19th of October, 1853, in an old brick-pit a little to the west of Hove, near Brighton, and was stuffed by Mr. H. Pratt of that place. I saw it just after it was skinned. It was observed creeping about amongst the old grass and reeds." In 1867 Mr. Harting recorded the second example simultaneously in the 'Zoologist' (p. 946) and 'The Ibis' (p. 468). It was obtained in the neighbourhood of Loughborough, Leicestershire, during the summer of 1864. The third example was recorded in the 'Zoologist' for 1871 (p. 2521) by Mr. J. H. Gurney, jun., who detected it amongst a collection of British birds in the Dover Museum. Mr. Cordon, the curator, informed Mr. Gurney that it was shot by himself in the neighbourhood, although the date of its capture could not be traced. It is no subject for surprise to find this bird occasionally wandering across the English Channel, when we know it breeds pretty commonly on the opposite coasts of France and Holland. As it is also apt to be confused with allied species, it may easily escape notice.

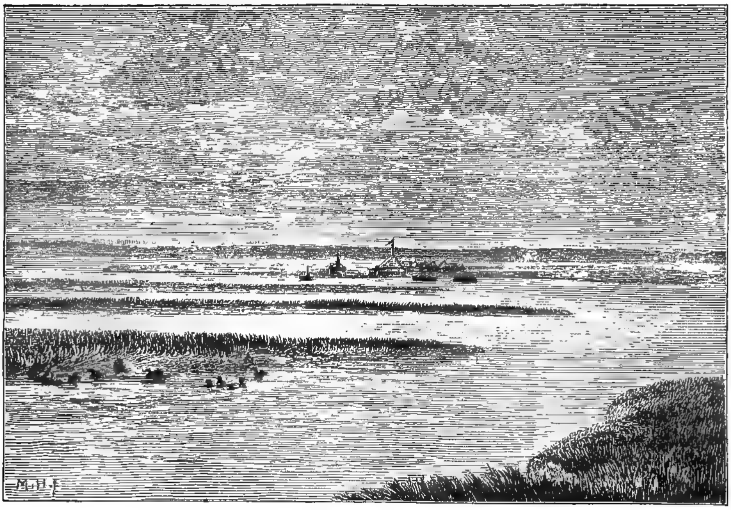
The Aquatic Warbler has not a very extensive range. It has never been found north of the Baltic, and is only known to pass through Spain on migration. It is a regular, though local, summer migrant to France, Italy, Germany, the Netherlands, and South Denmark. South of the Danube it is only known to pass through on migration, a few remaining during the winter in Greece and Asia Minor. In South Russia Goebel found it rare in the valley of the Dnieper; and Nordmann once obtained it at Odessa in spring. Bogdanow did not meet with it either on the Volga or in the Caucasus; but Meves found it abundant in the marshes of the Southern Ural, which, so far as is known, is its eastern limit. It is said to winter in the Canary Islands and in various parts of North Africa; but our information respecting its winter quarters is very meagre. There is no doubt that a considerable number remain to breed in Algeria and Tunis.

The only occasion on which I have met with the Aquatic Warbler was on the island of Heligoland. Mr. R. Bowdler Sharpe, Mr. Frank Nicholson, and I arrived on the island on the 23rd of September. We devoted the 24th to Gätke and his wonderful collection; but on the 25th we turned out early in the morning before breakfast, and were delighted to find that there had been a considerable migration of birds during the night, and that, out of the crowds that must have passed over, many tired or hungry birds had been left behind, and were to be found feeding on the edges of the cliff, or skulking among the potatoes. It was very curious to see what a mixture of birds we had on our breakfast table after about three hours' desultory wandering on this bare little earth-covered rock out of sight of land. To say nothing of common birds, such as Wheatears, Skylarks, Woodlarks, Meadow-Pipits, Redstarts, &c., we had shot a Starling, a Peewit, a Snow-Bunting, a Jack-Snipe, a Corncrake, a couple of Grey-headed Yellow Wagtails, and an Aquatic Warbler, and had seen Kestrels, Song-Thrushes, and Ring-Ouzels. The Aquatic Warbler was skulking amongst the potatoes; and a few days afterwards we picked up a second example.

The Aquatic Warbler is said to arrive at its breeding-haunts in North Germany during the last half of April; so that it belongs neither to the earliest nor to the latest group of migrants. As its name implies, this bird is only found in swamps, but is said to neglect the large reed-beds, and choose the ditches, ponds, and banks of lakes and rivers, which abound in coarse aquatic vegetation, being especially partial to sedges, in which it delights to hide. Tangled masses of wild roses, brambles, and thorn-bushes are also places where it is often found. Like all its congeners it is an active and restless bird, and is remarkably cautious and shy, concealing itself on the least approach of danger. The Aquatic Warbler is said never to hop, but on a branch or on the ground to run almost like a mouse. The song is described as much like that of the Sedge-Warbler, but is said to be shorter and more rapidly executed, and to want the clear flute-like notes which make the song of that bird so fine. Its food is insects; and it is not known that it ever feeds upon fruit of any kind.

Naumann says that this bird arrives in North Germany a week or two before the Sedge-Warbler, and is also a somewhat earlier breeder. Fresh eggs may be obtained in the last half of May. It never makes its nest amongst the reeds over the water, but chooses a bunch of sedge or water-plants near the bank, or a thorn or willow overgrown with rank herbage. The nest is never placed on the ground, but frequently only a few inches above it; seldom more than a foot or eighteen inches. It is suspended between the stalks of the plants which grow close to it, and which are woven into the sides. It is described as smaller than the nest of the Sedge-Warbler, somewhat roughly and carelessly finished outside, but inside very deep, round, and smooth. The foundation is of coarse grass, completed with fine round grass-stalks and roots, neatly lined with horse-hair. Occasionally spiders' webs, the flowers of the cotton-grass, and even feathers are used for its construction; but the final lining is said always to be horsehair. The number of eggs varies from four to five. They are brownish white in ground-colour, thickly mottled and clouded over the entire surface with yellowish brown, and sometimes with one or two streaks of dark brown. They vary in length from ·7 to ·67 inch, and in breadth from ·52 to ·5 inch. It is impossible to give any character by which the eggs of this bird can be distinguished from those of the Sedge-Warbler. Those that I have examined are not perhaps so yellow in tint and may be a trifle smaller; but in a large series it is quite possible that these differences will be found to be only individual ones.

The Aquatic Warbler has the general colour of the upper parts pale tawny brown. The eye-stripe is very distinct, greyish white, and extends almost to the nape; and over each eye-stripe a broad, very dark-brown streak passes to the nape, leaving a narrow pale mesial line on the crown. Each feather of the rest of the upper parts, including the wing-coverts, innermost secondaries, and tail, has a more or less distinct dark brown centre, the quill feathers only being uniform brown. In abraded summer plumage the underparts are nearly white; but in spring the throat and flanks are buffer, and in autumn the underparts are more or less suffused all over with buff. In many skins the lower throat and flanks are striated; in this plumage they are the *S. cariceti* of Naumann. These striations occur principally in birds shot in the pale breeding-plumage, but are sometimes sparingly found in the fulvous plumage after the autumn moult. Some ornithologists ascribe the striated underparts to the adult plumage, and the unstriated to birds of the year; but I have come to the conclusion, after examining a large series of these birds, that the striated plumage is that of summer and the unstriated that of winter, though this appears to be a somewhat exceptional change. Bill dark brown above, pale below; legs, feet, and claws pale horn-colour; irides hazel. This bird may be at once distinguished from its near ally the Sedge-Warbler by the difference in the stripes on the head. In that bird every feather on the head has a dark centre, forming, when the feathers are not ruffled, four or five distinct but narrow dark stripes on the crown between the two pale eye-stripes. In the Aquatic Warbler there are only two dark stripes on the crown, very broad, distinct, and conspicuous.



ACROCEPHALUS TURDOIDES*.

GREAT REED-WARBLER.

(Plate 10.)

Turdus arundinacus, *Briss. Orn.* ii. p. 219, pl. xxii. fig. 1 (1760); *Linn. Syst. Nat.* i. p. 296 (1766).
Acrocephalus lacustris, *Naum. Natur. Land- u. Wass.-Vög. nördl. Deutschl. Nachtr.* iv. p. 201 (1811).
Sylvia turdoides, *Meyer, Vög. Liv.- u. Esthl.* p. 116 (1815); **et auctorum plurimorum**—*Temminck* (*Boie*), *Naumann* (*Kaup*), *Ménétriés*, (*Brehm*), (*Lesson*), (*Gould*), (*Bonaparte*), *Crespon*, (*Keyserling & Blasius*), *Nordmann*, *Werner*, *Kjærbölling*, *Sundevall*, (*Jaubert & Barthélemy-Lapommeraye*), (*Degland & Gerbe*), (*Loche*), (*Heuglin*), (*Doderlein*), (*Salvadori*), *Fallon*, (*Shelley*), *&c.*
Muscipita lacustris (*Naum.*), *Koch, Syst. baier. Zool.* i. p. 166 (1816).
Calamoherpe turdoides (*Meyer*), *Boie, Isis*, 1822, p. 552.
Turdus junco, *Pall. Zoogr. Rosso-Asiat.* i. p. 458 (1826).
Hydrocopsichus turdoides (*Meyer*), *Kaup, Natürl. Syst.* p. 121 (1829).
Arundinaceus turdoides (*Meyer*), *Less. Traité d'Orn.* p. 419 (1831).
Calamoherpe lacustris (*Naum.*), *Brehm, Vög. Deutschl.* p. 442 (1831).
Calamoherpe stagnatilis, *Brehm, Vög. Deutschl.* p. 442 (1831).
Salicaria turdoides (*Meyer*), *Gould, B. Eur.* ii. pl. cvi. (1837).
Acrocephalus arundinaceus (*Linn.*), *Gray, List Gen. B.* p. 28 (1841).
Sylvia turdina, *Gloger, Handb. Naturg.* p. 312 (1842).
Salicaria turdina (*Gloger*), *Schleg. Rev. Crit.* p. xxvii (1844).
Calamodyta arundinacea (*Linn.*), *Gray, Gen. B.* i. p. 172 (1848).
Calamoherpe media, *Malm. Œfv. Vet.-Ak. Handl.* 1851, p. 159.
Calamoherpe turdina (*Gloger*), *Schleg. Vog. Nederl.* p. 142 (1854).
Acrocephalus turdoides (*Meyer*), *Heugl. Orn. N.O.-Afr.* i. p. 289 (1869).
Acrocephalus arabicus, *Heugl. Orn. N.O.-Afr.* i. p. 289 (1869).
Salicaria arundinacea (*Linn.*), *Harting, Handb. Br. B.* p. 14 (1872).
Acrocephalus fulvolateralis, *Sharpe, ed. Layard's B. S. Afr.* p. 289 (1877).

Linnæus placed this fine Reed-Warbler amongst his Thrushes, and thus laid the foundation for much confusion in its synonymy, whilst some British ornithologists have confounded it with the Eastern Nightingale, a bird which really is very closely allied to the Thrushes. The only satisfactorily authenticated instance of the occurrence of the Great Reed-Warbler in our islands is the one recorded by Hancock in his 'Catalogue of the Birds of Northumberland and Durham.' He writes, "A male specimen of this rare casual visitant was shot by Thomas Robson near Swalwell, four miles west of Newcastle, May 28th, 1847. It was skulking in the low herbage by the side of a mill-dam. A notice of this capture is recorded in Annals and Mag. Nat. Hist., August 1847, Vol. xx. p. 135. The specimen is in the possession of Mr. Thomas Thompson, of Winlaton; and was, I believe, the first recorded occurrence of this large Warbler in the British Islands."

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* It is to be hoped that British ornithologists will support me in using the name which has been applied to this species by far the greatest number of authors, and which remains in universal use on the continent. It is impossible to protest too strongly against the practice of transferring a name from one species to another—a practice which strikes at the root of all attempts to obtain scientific accuracy and precision, and paves the way for endless confusion. There can be no great harm in calling this species *A. lacustris* or *A. junco*, but under no circumstances should it be called *A. arundinaceus.*

On one of my visits to Constantinople I spent a day at Ortakoi, on the Bosphorous, with the above-mentioned Mr. Robson, and listened with great interest to the account of his capture of this rare visitant to our shores. I found Mr. Robson an excellent field-naturalist, well acquainted with the songs of all our common birds. He told me that whilst he was a working mechanic at Newcastle he used to devote much of his leisure time to the study of field-ornithology. One morning his attention was suddenly arrested by the song of a bird differing entirely from any thing he had ever heard before. It was so skulking in its habits that he had some difficulty in procuring it. Other occurrences are recorded from Kent, Essex, &c.; but I cannot learn that in any case the facts of the examples having been killed in this country and having been correctly identified are placed beyond doubt.

The Great Reed-Warbler is a western Palæarctic species, breeding in Central and Southern Europe, and ranging eastwards into Northern Persia and Turkestan. It also breeds in some parts of North Africa, and winters in South Africa. It is abundant in suitable localities in summer in Portugal, Spain, and all the countries of Europe south of the British Channel and the Baltic. In South Sweden, as in the British Islands, it appears to be only an accidental visitor. Its most northerly recorded locality is the islands at the entrance of the Gulf of Riga. In Russia it has not been found north of the valley of the Volga. In Africa it breeds in Morocco and Algeria; and it is a regular summer visitor to Palestine and Asia Minor. It winters on both the east and west of South Africa, having been obtained in Lower Guinea, Damara Land, Natal, and the Transvaal. From the latter country I have examples in full moult obtained in March and April.

The Great Reed-Warbler is the Reed-Warbler *par excellence*, being absolutely confined during the breeding-season to districts where the common reed (*Arundo phragmitis*) abounds. Hence its distribution is somewhat local. It is, however, very abundant in suitable localities, and frequents the reed-beds on the banks of rivers, in lakes, and even in small ponds. It is somewhat remarkable that this bird is not found amongst the reed-beds of the Norfolk broads. Although it breeds as far west as Portugal, and its northern range extends almost to the Gulf of Finland,

and although it is able, on its winter migration, to reach as far south as the Transvaal, and even Natal, for some reason or other it objects to cross both the English Channel and the Baltic. We are therefore obliged to visit the continent to make the acquaintance of this charming bird; but long before the steamer reaches Rotterdam the ornithologist who crosses over late in May will hear its loud, if not very musical, song in the reeds on the banks of the river, and, before he has become familiar with the note, may possibly mistake it for the croaking of frogs as he hears it for the first time amidst the splashing of water and the muffled jar of the engine.

Early in May, when many of the commoner summer migrants whose range extends also to our islands are busily engaged in the duties of incubation, a few of the most adventurous Great Reed-Warblers arrive at their breeding-grounds; towards the middle of the month they are tolerably common, and begin to make preparations for building; but it is vain to look for eggs before the last week in May. One reason for their late migration may possibly be the fact that the reeds in which they build do not reach maturity earlier; but probably the more potent cause of delay is connected with the supply of food, as they are not only very late in arriving, but are also very early in departing. Their song ceases about the middle of July; during August their numbers rapidly diminish; and early in September you may search the reeds for them in vain.

When the Great Reed-Warbler first arrives at its breeding-quarters it may occasionally be seen in the willows and other bushes which are often found in the marshes near the reed-beds; but usually it is only seen in the reeds. Its loud song causes its presence to be at once detected; and with a little caution there is no difficulty in obtaining a sight of the bird. In May, last year, I saw a great deal of this bird as I strolled amongst the twenty-two ponds in the grounds of the old Cistercian Monastery at Riddagshausen, near Brunswick, now converted into the residence of my friend Oberamtmann Nehrkorn. Many of these ponds are full of reeds, and are frequented by great numbers of these birds. On the 16th of May I stood for some time under a pollard willow not five yards from a Great Reed-Warbler, listening to his harsh croaking as he sat unconcerned on one of the branches. When finally I frightened him away to see what he would do, he did not plunge into the reeds, which, by the way, were not yet full-grown, but he flew over them to a willow bush, where, conspicuously perched near the top of a perpendicular branch, he resumed his song. Four days later I found his nest; and on the 22nd it contained one egg. Both birds were in the reeds close by, and flew angrily at me as I bent down the reeds to peep in, croaking at me like a couple of frogs. Later on, in Pomerania, on the 5th of June, in the reed-beds in the Garde See, the Great Reed-Warbler was equally common. Now and then we saw a bird run up the reeds, and occasionally flutter along over their tops with hurried flight and outspread depressed tail, as if ready at any moment to alight. The water was above my knees, and the reeds much above my head and very densely planted; but I soon found a nest containing four eggs. There is no evidence of two broods having been reared in one season; but Mr. Sclater and I took a nest with fresh eggs on the 29th of June, at Riddagshausen, which may have belonged to a pair whose first nest had been taken.

The song of the Great Reed-Warbler is something like that of the Sedge-Warbler, but shorter, louder, and harsher. It consists for the most part of variations on the few notes which I wrote down on the spot as *kar-r-a, kar-r-a, kee, kee,* interrupted with what appears to be the alarm-note, a root of *kr-r-kr-r,* as loud and as harsh as the croaking of a frog, but which nevertheless sounds like music in the ears of a British ornithologist, who listens to it as the note of a rare bird. Like most of its allies, this bird sings from early morning to late at night.

Its food is principally insects, which it procures on the reeds—small beetles, flies, and various kinds of larva. It is said occasionally to catch an insect on the wing, and sometimes to pick them up from the muddy banks of the river or lake. In autumn, like most other insectivorous birds, it varies its diet with some of the softer wild fruits, especially elder-berries.

I am not aware of any reliable instance of this bird's breeding otherwise than in reeds. The nest is usually placed in the middle of the reed-bed, about halfway between the top of the reeds and the surface of the water. Three, four, and sometimes five reeds are deftly woven into the outside of the nest, which is a large compact structure, composed almost entirely of the dead grass-like leaflets of the reed interwoven with a few roots, and lined with the dead flowers of the reed and a few slender grass-stalks. The nest is deep and cup-shaped, having an inside diameter of about two inches and a half, and being of about the same depth. Outside it measures about five inches in height, with an outside diameter of four inches. Occasionally the leaves of water-plants are interwoven in the nest, and sometimes moss, wool, a feather or two, and downy seeds (such as those of the clematis and cotton-grass). The number of eggs is generally four or five, but frequently six. In colour they almost exactly resemble those of the Marsh-Warbler, but are twice the size. The ground-colour is a pale blue, sometimes approaching green, and often tinged with grey. Few eggs are more boldly or richly spotted. Large blotches of olive-brown or russet-brown, sometimes pale but occasionally approaching black, are distributed pretty evenly over the surface, and are relieved by minute spots of the same colour, and by the underlying blotches, which show pale through the ground-colour. The eggs vary considerably in size; the largest in my collection measures 1·0 by ·7 inch, and the smallest ·8 by ·63 inch.

My friend Captain Verner has sent me the following notes on the habits of this bird:—"On May 11th, 1875, I observed many Great Reed-Warblers amongst the tall reed-beds in a Laguna in Southern Andalusia. They were flying about in a restless manner, now and then alighting on the reeds and singing loudly. By taking advantage of the cover afforded by the patches of reeds I was enabled to wade to within three or four yards of single birds, and watch them closely. They varied their song with a chattering note, much like our Sedge-Warbler's, but more noisy. On being disturbed they darted off with a strong and bold flight, doubling the corner of the nearest reed-bed, and settled again to recommence their song with fresh vigour. Although I hunted diligently for some hours, at times up to my waist in water, and amongst reeds some six feet in height, I only succeeded in finding two unfinished nests. They were suspended between the stems of the reeds in a similar manner to the common Reed-Warbler's."

The Great Reed-Warbler bears some superficial resemblance to a Thrush; but its slender shape, minute bastard primary, rounded tail, and scutellated tarsus, to say nothing of its double moult and unspotted young, ought to have prevented it from being confounded with the Thrushes, even by cabinet naturalists who were unacquainted with its Acrocephaline song and nest. The general colour of the upper parts is olive-brown, suffused with rufous-brown on the rump, tail, and wings. The underparts are pale rufous-brown, shading into nearly white on the chin, throat, and the centre of the belly. In the bill the upper mandible is dark brown, and the under mandible pale brown. The irides are brown, and the legs pale horn-colour. In the autumn plumage the brown of both the upper and underparts is more rufous than in spring; but much of this rufous shade is lost by abrasion both in winter and summer. Birds of the year occasionally show traces of streaks on the breast.

The Great Reed-Warbler has several very near allies, with which it has often been confounded. It is, however, slightly larger than any of them, has a somewhat more pointed wing, and decidedly paler legs. Its nearest ally is the Chinese Great Reed-Warbler (*A. orientalis*), which breeds in the valley of the Amoor, North China, and Japan, and winters in the Burma peninsula and the islands of the Malay archipelago. The Indian Great Reed-Warbler (*A. stentoreus*) has a still more rounded wing and a somewhat longer bill and tail. It is much more restricted in its migrations, and appears to be a resident in Egypt and Ceylon. In the intervening country, Persia, Turkestan, and the Himalayas, it is partially migratory, breeding in the highlands and wintering in the plains. Two slightly smaller species occur in Australia. The Western species (*A. longirostris*) is very rufous in colour; and the Eastern species (*A. australis*) has a comparatively shorter bill. Both species breed in the south, retiring north on the approach of the cold season. A fifth near ally of our bird, Kittlitz's Great Reed-Warbler (*A. syrinx*), appears to have become slightly differentiated by its isolation on some of the Caroline Islands in the Pacific Ocean. There are several other more distantly allied species.

ACROCEPHALUS ARUNDINACEUS* (*Brisson nec Newton*).

REED-WARBLER.

(PLATE 10.)

Ficedula curruca arundinacea, *Briss. Orn.* iii. p. 378 (1760).
? Motacilla salicaria, *Linn. Syst. Nat.* i. p. 330 (1766).
Motacilla arundinacea, *Lightfoot, Phil. Trans.* lxxv. p. 11 (1785); **et auctorum plurimorum**—*Gmelin*, (*Bechstein*), (*Wolf*), (*Leach*), (*Temminck*), (*Naumann*), (*Koch*), (*Jenyns*), (*Crespon*), (*Nordmann*), (*Sundevall*), (*Salvadori*), (*Fallon*), (*Bonaparte*), (*Macgillivray*), (*Selys-Longchamps*), (*Schlegel*), (*Degland*), (*Gerbe*), (*Loche*), (*Doderlein*), (*Droste*), (*Shelley*), (*Gould*), (*Keyserling*), (*Blasius*), (*Thompson*), (*Lindermayer*), (*Fritsch*), *nec* (*Gray*), (*Newton*), (*Blanford*), (*Gurney*), (*Harting*).
Sylvia arundinacea (*Briss.*), *Lath. Ind. Orn.* ii. p. 510 (1790).
Acrocephalus arundinaceus (*Briss.*), *Naum. Nat. Land- u. Wass.-Vög. nördl. Deutschl. Nachtr.* Heft iv. p. 202 (1811).
Muscipeta arundinacea (*Briss.*), *Koch, Syst. baier. Zool.* i. p. 165 (1816).
Sylvia strepera, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 182 (1817).
Calamoherpe arundinacea (*Briss.*), *Boie, Isis*, 1822, p. 552.
Curruca arundinacea (*Briss.*), *Fleming, Brit. An.* p. 69 (1829).
Curruca fusca, *Hempr. et Ehr. Symb. Phys. Aves*, fol. cc (1833).
Salicaria arundinacea (*Briss.*), *Selby, Brit. Orn.* i. p. 203 (1833).
Calamodyta strepera (*Vieill.*), *Gray, Gen. B.* i. p. 172 (1848).
Sylvia affinis, *Hardy, Ann. de l'Assoc. Norm.* 1841, fide *Degl. Orn. Eur.* i. p. 572 (1849, *nec Blyth*).
Calamoherpe obscurocapilla, *Dubois, Journ. Orn.* 1856, p. 240.
Calamodyta arundinacea (*Briss.*), *Gray, Hand-l. B.* i. p. 208, no. 2940 (1869).
Salicaria strepera (*Vieill.*), *Harting, Handb. Br. B.* p. 14 (1872).
Acrocephalus streperus (*Vieill.*), *Newton, ed. Yarr. Brit. B.* i. p. 369 (1873).
Salicaria macronyx, *Severtz. Turkest. Jevotn.* pp. 63, 128 (1873).

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* In order to prevent the possibility of being misunderstood it is necessary for the present to add the authority after this name. It was applied to the Great Reed-Warbler by Linnæus, Gmelin, Latham, Bechstein, Wolf, Temminck, and Vieillot; but as all these writers thought the Great Reed-Warbler was a Thrush, and placed it in the genus *Turdus*, no one was likely to confuse the great *Turdus arundinaceus* with the modest *Acrocephalus arundinaceus*. In process of time the earlier ornithologists discovered that they were mistaken in supposing the Great Reed-Warbler to be a Thrush; and finding that the genus to which it properly belonged already contained an *arundinaceus*, they most sensibly adopted a new and extremely appropriate name for the Thrush-like Reed-Warbler, *turdoides*, as a perpetual memorial of their former blunder. For upwards of a quarter of a century all went well, and everybody knew what bird was meant by *Sylvia arundinacea*, *Acrocephalus arundinaceus*, *Calamoherpe arundinacea*, or *Salicaria arundinacea*. In 1841 the first false step was made by Gray. Led astray by the plausibility of the Stricklandian Code, which received the sanction of the British Association the following year, he transferred the name of the Reed-Warbler to the Great Reed-Warbler, raking up a long-forgotten name for the smaller species. But the pedantry of Gray was not likely to do

The Reed-Warbler appears to have been known to Willughby and Ray, who most unaccountably placed it amongst their "Woodpeckers less properly so-called"! but was not accurately described until Brisson's great work appeared. Gilbert White must have been acquainted with the bird, which he describes as differing from the Grasshopper Warbler by having the *head,* back, and wing-coverts without the dark spots of the latter species. He also identifies his bird with the Lesser Reed-Sparrow of Willughby and Ray, which is undoubtedly the Reed-Warbler; but as in a subsequent letter he lays great stress on the white streak over the eye and the tawny rump, many writers, amongst whom are Blyth, Yarrell, and Newton, have concluded that he meant the Sedge-Warbler. He probably confounded the two birds together. Fourteen years afterwards any confusion that may have arisen was cleared up by Lightfoot, who described both the bird, its habits, and its nest, from observations made in West Middlesex.

The Reed-Warbler is common enough in the south of England; but in the north it is very rare, and has consequently acquired, in the eyes of northern naturalists, the fascination which naturally emanates from the halo of mystery which surrounds rare birds. It seems very doubtful whether the Reed-Warbler breeds in Great Britain north of the Humber or west of the Mersey. Writing to me of its occurrence in North-east Lincolnshire, Mr. Cordeaux states that it is rare. "In the summer of 1876 and two following years two or three pairs nested in a reedy drain in this parish (Great Cotes). Since that period I have not met with them, which is more remarkable as they were not disturbed in rearing their young. It occurs tolerably regularly on migration through the district in the autumn." It has been recorded from Ireland and Scotland, and is even supposed to breed in Lothian; but as the writers who mention its occurrence do not appear to have been aware of the singularity of the circumstance, we may fairly imagine that no great pains were taken to verify the statements, and we may consequently accept them with some doubt. On the continent the range of this bird is not very limited. It is found in suitable localities in summer throughout

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much harm; and his unscientific nomenclature would have been forgotten as a passing eccentricity, if, thirty-two years afterwards, Newton had not adopted it. As a natural consequence, the minor ornithologists blindly followed their leaders—Harting, Blanford, Gurney, Dresser, and nearly every contributor of the 'Ibis' and the 'Zoologist' adopted the new names, until the name of *Acrocephalus arundinaceus* meant one bird in England and another in France and Germany. English ornithologists must accept the penalty of having followed such blind guides, and must add an authority (Brisson) to their name, or a repudiation of other significations, such as *nec Gray, nec Newton,* or *nec Dresser,* until the confusion produced by these writers has blown over and been forgotten.

Europe, south of latitude 58°, and in Asia Minor, Palestine, South-west Siberia, Turkestan, Persia, Baluchistan, and probably in Afghanistan. It is said to be a resident in Greece and the surrounding islands; but it passes through North Africa on migration, and winters in Central Africa. Severtzow maintains that the Turkestan birds are a distinct species, which he has named *Acrocephalus macronyx*; but the last time I was in Moscow we very carefully examined his series of these birds, principally from the valley of the Syr-Darja, where he says his new species is a resident, and I failed to detect any specific difference whatever*.

The Reed-Warbler, as its name implies, is a denizen of the reed-beds and sedges which often abound on the shallow margins of rivers, lakes, ponds, and ditches. It is, however, by no means confined to the reeds, and is very partial to brushwood in the vicinity of water, and also frequents gardens, especially where there are ponds. Some continental ornithologists have attempted to discriminate between the birds frequenting reeds and those frequenting bushes; but there does not appear to exist a shadow of evidence in favour of their being distinct.

The habits of all the Reed-Warblers are almost exactly alike. They are migratory birds, never remaining in this country during the winter, and arriving somewhat late in spring. Even in the south of England the song of the Reed-Warbler is not heard before the last week of April, and many birds do not arrive before May is well advanced. A bird so retiring in its habits is more often heard than seen; but with care it is not difficult to obtain a sight of the indefatigable songster as it clings to a perpendicular reed or willow-twig, or flies across the water from one reed-bed to another, or hurries over the tops of the reeds along a ditch or across a pond. In cold windy weather they do not sing much unless disturbed; but in bright sunny mornings or warm still evenings they sing incessantly, half a dozen birds apparently trying to outrival each other in the loudness and rapidity of their notes. In calm close weather they will sing almost all night. The song is somewhat more monotonous than that of the Sedge-Warbler; the whistle is not so full, so rich, or so loud; but, as if to compensate for this, the scold is by no means so harsh, and is decidedly gentler; but the notes follow each other in rapid succession, and possess considerable variety and some melody. Its call-note is a double *choh*; and the alarm-note at the nest sounds like *har-r*. Like all its congeners, it is principally an insectivorous bird, and is occasionally seen to fly after an insect on the wing. In autumn there seems to be no doubt that it occasionally eats soft fruits, such as currants and elder-berries. I have listened to the lively song of this charming bird for hours whilst boating on the broads of Norfolk and on the extensive fish-ponds where the old monks used to breed their carp in the days when my friend Oberamtmann Nehrkorn's house was a Cistercian monastery. For an unusually graphic account of the habits of the Reed-Warbler in the former locality I must refer the reader to Stevenson's 'Birds of Norfolk.'

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* Severtzow kindly lent me one of his types for comparison. The wing measures 2·85 inches, the tail 2·3, the culmen ·7, the tarsus ·98, and the hind toe and claw ·63. The second primary is intermediate between the fourth and fifth. The colour is slightly paler than British examples, but does not differ from that of skins from Savoy, Central Germany, Transylvania, and the Ural river. The size of the feet of these small birds varies considerably, probably in consequence of difference of age or sex; and I have examples of this species from Europe with quite as large feet as those of the Turkestan birds.

This bird sometimes breeds in bushes, but generally in reeds. In 1881 I made two excursions from London in order to observe them in both these situations.

On the 3rd of June Mr. Bidwell and I paid a visit to one of the chief breeding-places of the Reed-Warblers on the banks of the Thames, about twenty miles from the city. We kept close to the bank, which was lined with willows from six to twenty feet high, the lower branches dipping into the water. We passed some willows which had been lopped down into the dimensions of an ordinary hedge without hearing the notes of the birds of which we were in search; but as soon as we reached the taller and wider trees, our appearance seemed to be the signal for intermittent snatches of a rapid song which sounded both angry and defiant, and which became almost continuous when the boat-hook gripped a branch of a tree close to the one in which the Reed-Warbler was protesting against our invasion of his breeding-grounds.

We very soon discovered a nest. It was about nine feet above the water, and interwoven between three slender willow-twigs, which stretched out at an angle of about 45° from the perpendicular. It was a very compact structure, more than twice as high as it was wide, the bottom two thirds being only foundation. The nest inside was about as deep as it was wide, and quite horizontal. The materials were principally very fine roots, a piece or two of worsted, a feather, a little moss, and some dry grass. The lining was entirely fine roots. There were five eggs in the nest, slightly incubated. We afterwards found four more nests, containing respectively four, four, three, and two eggs, besides several old nests and one or two not quite finished. They were all overhanging the water, and all in the tall willows; but the distance of the nest from the water varied from six to twelve feet. One old nest was only three feet above the water. At one of the nests, the eggs in which were more incubated than the others, the female remained whilst we were at the nest, flying backwards and forwards, and occasionally perching very near us. Her song seemed to be by no means so loud or continuous as that of her mate, and was little more than a chatter. The materials of all the nests were nearly the same; but one was built without preliminary foundations, being not much deeper than wide outside; whilst others were intermediate in this respect between the two extreme forms. In some two twigs only were interwoven with the nest, whilst one had four twigs passing through its walls.

The eggs in each nest varied very little; but some clutches were much darker and more profusely spotted than others. The ground-colour was a pale greenish blue, and the spots or blotches greenish brown, more or less confluent at the larger ends, the underlying spots being paler and greyer than the others. Some eggs show a few streaky spots, almost black.

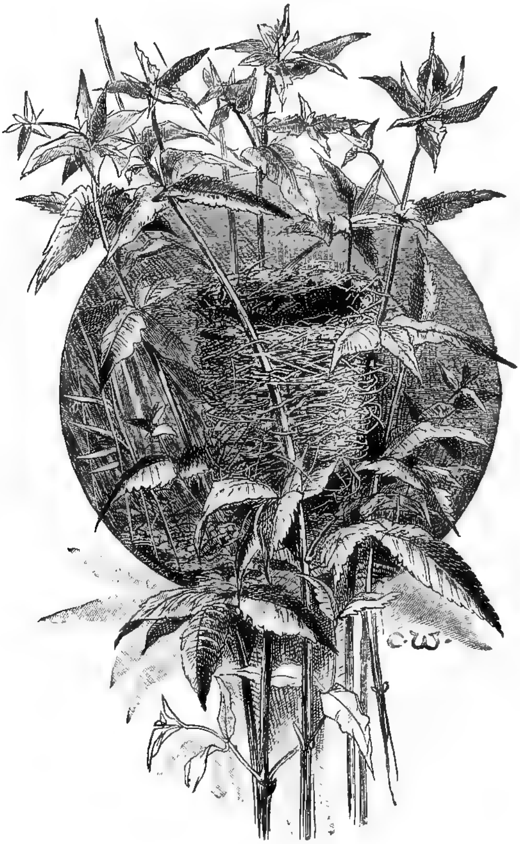
A week later I went down to Brighton. About a mile from the railway-station at Shoreham, across the Duke of Norfolk's suspension-bridge, is a plain watered by the river Adur, which flows between the downs and the beach for some distance. This plain is, as might be expected from its position, somewhat swampy; but it is a highly cultivated farming district, being well drained by natural dykes which wind into the river, assisted by a number of artificial dykes generally cut in an absolutely straight line, reminding one of the Dutch system of broad open drains. In Sussex these drains serve three purposes. By a system of trap-doors they allow the river to take away the surplus water whenever the level of the river is below that of their own, without admitting the floods from the river when the contrary is the case. The second purpose they serve is that of reed-beds, from which a crop is regularly gathered for use as a substitute for straw. The third purpose to which they have been applied (by Nature, and not by Man) is that of a most interesting summer residence and breeding-place of the Reed-Warbler.

There are very few hedges on this plain, these dykes serving, indeed, a fourth purpose (which I had forgotten), namely of dividing field from field. The absence of hedges is accompanied, as usual, by the absence of birds. Occasionally we saw a few Rooks or a Peewit on the fallows. Now and then a Skylark might be heard singing overhead, or a Corn-Bunting might be seen on the telegraph-wires uttering its monotonous note. Once we saw a Sedge-Warbler singing its harsh song amongst a swamp full of flags and rushes and gay with the yellow iris, and occasionally essaying a short flight in the air after the manner of a Tree-Pipit.

The Reed-Warblers were in the dykes; but a careless passer-by would have seen nothing of them. The dykes were from four to six feet wide, with steep banks, the level of the water being about two feet below the top of the banks. Most of the dykes were full of reeds, the tallest of which reached another two feet above the banks, so that as we walked along them we looked down upon the heads of the reeds; but not a Reed-Warbler was to be seen or heard. The dykes which we visited may have been a couple of miles long. Sixteen days earlier Swaysland had cleared the dyke of Reed-Warblers, beating up the reeds and driving the birds into a net, returning with twenty-four birds, a nest with four eggs, and leaving a nest not quite completed. The latter nest we visited, and found it to contain four fresh eggs. In another part of the dyke, which had not been explored by Swaysland on his previous visit, we also found a nest containing four fresh eggs. These nests were both within six inches of the level of the water. A couple of days after Swaysland's visit a bitterly cold north wind set in, and we had a fortnight's regular March weather, with two days heavy rain in the midst of it, during which time either the Reed-Warblers were not at the dyke or suspended nest-building for the time, or carried it on in a very dilatory manner. The evening before our visit the wind changed to south, and in the afternoon we found it very hot. We divided our forces and began to beat up the reeds on either side of the dyke in what appeared to me at first to be an utterly useless search for Reed-Warblers which did not exist. We had not proceeded more than a hundred yards, however, before the well-known song of a Reed-Warbler suddenly commenced. By gently bending aside the reeds with our sticks, we were able easily to expose the whole situation to view, and in a few yards came to the nest. In this way, without any difficulty, we found in a couple of hours eleven nearly finished nests, built in the reeds from one to two feet above the water-level. The birds were evidently busy building; both male and female were in close proximity to the unfinished nest, the locality of which was at once revealed to us by the male beginning to sing. The birds skulked away among the reeds; and we could trace their progress by watching the motion of the reeds, which bent under their weight. They never came out into the open, unless suddenly surprised or surrounded. The Reed-Warbler is said to be a very quarrelsome bird, and to drive off all comers from its own particular part of the dyke. Each nest was at some distance from the next; and when we drove the birds before us into the ground of the next pair the song of the two males sounded loud and angry. The narrower dykes were full of reeds; but some of the broader ones had open water in the middle. In these broader dykes we saw much more of the birds, as they frequently crossed from one side to the other; and here we observed that the Reed-Warbler, like the Sedge-Warbler, sings as it flies. We could also watch them with the binocular as they lustily sang, clinging to the reeds, and showing very conspicuously the deep orange of the inside of their mouths. When flying, the tail was generally expanded, especially as they alighted; but when on the reed, it was usually depressed as if to form an additional support by touching the stem. We never saw them with erected tail; but this position may probably be assumed when they are defiant. Their great object appeared to be to keep as much out of sight as possible; and whenever a bird did take wing it flew close over the top of the reeds, dropping into them as soon as it thought itself at a sufficiently safe distance. Where the reeds were slender or not close together, we found no nests and saw no birds. The nests were very easy to find. Some were long and tapering; but most had little or no unnecessary foundation. There were generally three or four reeds interwoven into the sides of each nest. Swaysland had an idea that the nests were so built that they could rise or fall with the rise or fall of the water; but we found that most had a leaf projecting close to the nest both immediately above and below the nest on one or other of the reeds, which would make any movement of the kind impossible.

There was frequently a little wool or thistle-down used in the construction of the nest; but dry grass-stalks and roots were the principal materials. Ten days later there would no doubt have been plenty of eggs; but we were afraid that we were too late already. Possibly the cold weather may have been the cause of the delay; or it may perhaps be accounted for on the theory that Swaysland caught most of the original settlers on this dyke, and that the birds we saw were a later arrival of Reed-Warblers which had been driven out of the adjoining dykes by their quarrelsome neighbours. The eggs of the Reed-Warbler vary from ·78 to ·7 inch in length, and from ·55 to ·5 inch in breadth, and are from three to five in number. Dixon writes, "It is worthy of remark how very distinct generically the eggs of the British Warblers are. The eggs in each genus, almost without exception, are peculiar. Thus in the Willow-Warblers (*Phylloscopus*) we have pure white eggs spotted with red; in the Tree-Warblers (*Hypolais*) the eggs are salmon-coloured spotted with purplish brown; in the Grasshopper Warblers (*Locustella*) the finely powdered markings of brown and their general pinky appearance are characteristic of them alone; whilst in the Reed-Warblers (*Acrocephalus*) greens and olive-browns are the predominant colours. In the true Warblers (*Sylvia*), however, there is not so much uniformity; and this circumstance doubtless to some extent proves the greater antiquity of these birds as compared with the birds of allied genera. It seems to me that the very distinct variations in the eggs of the true Warblers show a wide differentiation of many of the species; but in the allied groups (*Acrocephalus, Locustella, Hypolais, Phylloscopus*), although the species have become fairly differentiated, the eggs have not yet had time to vary, and consequently a certain type of egg runs through each respective genus. What part these variations play in the economy of the birds still remains to be discovered; but I think it is very clear that these well marked generic types of eggs prove a not very remote evolution of the birds in each of these genera severally from a common parent."

The general colour of the upper parts of the Reed-Warbler is olive-brown suffused with rufous, especially on the rump and upper tail-coverts. The eye-stripe is nearly obsolete; and the innermost secondaries have broad ill-defined pale edges; the breast, flanks, and under tail-coverts are rufous-buff, shading into nearly white on the chin, throat, and centre of the belly. Bill dark brown above, pale beneath; legs, feet, and claws slaty brown; irides brown. After the autumn moult the rufous colours of the upper and underparts are more pronounced. The nearest ally to the Reed-Warbler is undoubtedly the Marsh-Warbler, from which it is very difficult to distinguish it, except when freshly moulted. It has also three other very near allies—*A. dumetorum* and *A. agricola* in the Eastern Palæarctic and Oriental Regions, and *A. bæticatus* in the South Ethiopian Region; but these species, as might readily be anticipated in birds whose migrations extend over so much smaller an area, have much more rounded wings, the second primary being always shorter than the fifth. In the more pointed-winged species it is sometimes nearly as long as the third, and never much shorter than the fourth.



REED-WARBLER'S NEST.

ACROCEPHALUS PALUSTRIS.

MARSH-WARBLER.

(Plate 10.)

Sylvia palustris, *Bechst. Orn. Taschenb.* p. 186 (1802); **et auctorum plurimorum** — *Temminck, Naumann,* (*Schlegel*), (*Newton*), (*Degland & Gerbe*), (*Loche*), (*Doderlein*), (*Salvadori*), (*Gould*), (*Dresser*), *&c.*
Acrocephalus palustris (*Bechst.*), *Naum. Nat. Land- u. Wass.-Vög. nördl. Deutschl. Nachtr.* Heft iv. p. 202 (1811).
Calamoherpe palustris (*Bechst.*), *Boie, Isis,* 1822, p. 552.
Calamoherpe musica, *Brehm, Vög. Deutschl.* p. 446 (1831).
Salicaria palustris (*Bechst.*), *Gould, B. Eur.* ii. pl. 109 (1837).
Calamodyta palustris (*Bechst.*), *Gray, Gen. B.* i. p. 172 (1848).
Sylvia (Calamoherpe) fruticola, *Naum. Vög. Deutschl.* xiii. p. 453 (1853).
Calamoherpe pratensis, *Jaub. Rev. et Mag. de Zool.* vii. p. 65 (1855).

Thanks to the researches of Harting and others, the Marsh-Warbler must now be admitted to be a regular though local summer visitor to the south of England. Some English ornithologists, who have never made the personal acquaintance of both species, have almost refused to admit their distinctness. No doubt they are very closely allied; but in their song, habits, eggs, and geographical distribution they differ as much as a Blackbird differs from a Thrush.

In Harting's 'Handbook of British Birds' six occurrences of the Marsh-Warbler (three near Cambridge and three near Yarmouth) are recorded. There does not seem to be any reason to doubt the correctness of the identification in any of these instances. In the 'Zoologist' for 1875, p. 4713, Mr. Cecil Smith satisfactorily proves not only the repeated occurrence, but also the breeding of this species, near Taunton in Somersetshire. Last year, at least three nests of the Marsh-Warbler were taken in the same locality. I saw the eggs of one of these nests before they were blown; and two of the nests are now in my collection. These nests were attached to the stalks of the meadow-sweet, cow-parsnip, and nettle; and, in one instance at least, the superiority of the song to that of the Reed- or Sedge-Warbler was noted. The eggs which I saw were unmistakable Marsh-Warbler's eggs; and those in the other nests were correctly described. Mr. Murray A. Mathew has recorded the first occurrence in the 'Zoologist' for 1882, p. 265; and the others are mentioned by Mr. F. Stansell in the same volume, p. 306.

I am also indebted to my friend Mr. John Young for the following note of the Marsh-Warbler breeding in England near Bath, and obligingly contributed by Mr. C. Young of Llandaff:—" In the summer of 1880

I found two nests of this species—one on July 21st, from which the young ones had flown, the other about a quarter of a mile lower down the brook, which was not finished when I found it on July 3rd, but on the 15th contained four eggs somewhat incubated. The first nest was supported by last year's nettle-stalks and the greater willow-herb, and was about a foot from the ground. The second was about three feet from the ground and supported by figwort and nettle-stalks, and was some distance from the bank of the stream. The eggs are very different from those of the Reed-Warbler, and more resemble those of the Great Reed-Warbler, but are smaller. The nest, though suspended in the same way as that of the common species, is more loosely constructed, of grasses, both stalks and flowers being used; it is not so deep, and has no wool about it, this being generally a feature in the Reed-Warbler's nest. Nor was the locality one where I should have expected to find the Reed-Warbler, the stream being small, with an entire absence of reeds, the banks fringed with alders and willows, and in places a considerable growth of coarse herbage. I heard the song several times, and noted its difference from that of the Sedge-Warbler, which also frequented the same place. My unmusical ear, however, failed to distinguish it from that of the Reed-Warbler, with which I am well acquainted. I scarcely saw the parent birds, as they were very shy and kept carefully out of sight. The hen bird left the nest when I approached it the second time."

On the continent the geographical range of the Marsh-Warbler differs but very slightly from that of the Reed-Warbler. It is a regular summer visitor to most parts of Europe south of the Baltic. In Russia it has been found as far north as Rēval in the west and Ekatereenburg in the east. Finsch records it from South-west Siberia. Russow obtained it in Western Turkestan, and Blanford in South Persia. Its occurrence in Asia Minor or Palestine is doubtful. It winters in Africa, having been recorded from various parts of the valley of the Nile, Egypt, Nubia, and Lado, almost on the equator. It is also said to winter as far south as Natal.

The Marsh-Warbler is one of the latest birds of passage to arrive at its breeding-grounds, and one of the earliest to leave in autumn. It is said to arrive about the middle of May, and to depart late in August. The Marsh-Warbler does not frequent reeds as the Reed-Warbler generally does, but confines itself principally to swampy thickets, where brambles struggle through the rank herbage that almost smothers them, and tall willows rise above the brushwood, generally near water, but seldom overhanging the stream. It is not nearly so skulking in its habits as its nearest relation, but is often seen perched conspicuously on the tops of the willows pouring out its song, or making a long flight from one tree to another. It is a far finer singer than its near ally. It sings quite as loud; but its voice is more melodious and its song more varied. Sometimes one might imagine that one was listening to the song of a Reed-Warbler with an unusually rich voice; but more often the melody recalls the song of the Swallow, the Lark, or of the Tree-Warbler, and often one might come to the conclusion that the singer had had lessons from a Nightingale or a Bluethroat. The song is not so loud as that of the Nightingale, but almost as rich and decidedly more varied. In some parts of Germany both species are common, and in the course of a morning's stroll, you may hear both birds in full song and have a good opportunity of making a comparison between them. I penned the preceding notes three years ago on the banks of the river that winds past Herrenhausen, near Hanover, whither my friend Post-Director Pralle had taken me the year before he died, to teach me the difference between the songs of these two birds, both of them special favourites of his. Naumann says that the call- and alarm-notes resemble very closely those of the Reed-Warbler. He also asserts that, in addition to their usual insect food, they are fond of currants, elder-berries, and other soft fruits.

The same excellent observer states that "the nest is never placed over water—not even over marshy ground. It is always built over firm ground, though this is generally somewhat moist, as it cannot help being on the bank of a stream, a situation often chosen. But you can always reach the nest dryshod. In the Lowlands I always found it near the large country-houses, especially in the gardens on the banks of the moats, which sometimes were filled with reeds, and frequently contained very little vegetation. The nest was sometimes close to the water, but often many steps away from it, in low bushes overgrown with reeds; frequently it was built in the nettles, or in a clump of water-sorrel and reeds, or in a small bush overgrown with reeds, nettles, and other plants. It is also said to be found in the rape-fields, generally in the ditches, seldom deep in the rape itself. The Reed-Warbler often breeds near the Marsh-Warbler, sometimes in the same ditch; but the latter bird always builds in the herbage on the bank near the water, whilst the former as constantly breeds in the reeds over the water. To this rule there seems to be no exception. The nest is generally from one to three feet from the ground, very seldom nearer, and, I am told on the best authority, never on the ground itself. . . . . It is no use to look for the nest in the middle of dense thickets, but only on their edges, especially in isolated little bushes close to the borders of ditches and moats. When one knows this they are comparatively easy to find. The greatest difficulty connected with the search is in the great restlessness of the bird. The male sings now here, and then a hundred yards away. He seems to require for his feeding-ground a much wider circle than his congeners do. The best way to find the nest is to notice where he sings during the night or at early morning.

. . . The nest perfectly resembles that of the Grasshopper Warbler *, but is closer built, and its colour is darker and greyer; it is also more smoothly finished outside. It is as deep as the nests of other Reed-Warblers, neatly rounded, with the upper edge bent inwards. The materials are principally dry leaves and stalks of fine grass, mixed with grass and the fibres of nettles and other plants, and often with insect-webs, all somewhat carefully woven together, in some places almost felted together. Inside it is lined with very fine grass and a considerable quantity of horsehair."

The two nests from Taunton were suspended between stems of the meadow-sweet. They are composed almost entirely of fine round grass-stalks mixed with a few dry grass-leaves and some kind of downy fibre. One of them is somewhat sparingly lined with black horsehair; and the other is lined with a spray or two of green moss, upon which a profuse covering of black horsehair is placed, coming up to the outside rim. The inside is beautifully rounded and deep, the inside diameter being about 2¼ inches and the depth 1¾ inches.

The Marsh-Warbler breeds only once in the year; but if the nest be disturbed it soon makes another. Pralle told me that he once found a nest of a Marsh-Warbler on an island in one of the parks near Hanover containing fresh eggs, which he took. A week afterwards he revisited the place, and found a second nest with eggs close by the old site. He also took these eggs, and was surprised to find that in the course of another week a third nest had been built, in which the birds successfully reared a brood.

The number of eggs varies from five to seven; and in the colour and character of the markings they present two very distinct types, the one apparently as common as the other. The first type has the ground-colour pale greenish blue, with surface-spots and blotches of olive-brown and underlying markings of violet-grey. The peculiarity of this type is that most of the spots are underlying ones, the overlying spots being fewer and smaller. Each of these olive surface-markings generally contains a spot of darker brown in the centre. The second type somewhat more nearly approaches the eggs of the Reed-Warbler, being of a greenish-white ground-colour, richly marbled, blotched, and spotted with olive-brown, and having a few very dark brown specks. In this type the underlying markings are few and usually small. In both types most of the markings are distributed

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* Dresser, in his 'Birds of Europe,' also notices the resemblance of the nest to that of the Grasshopper Warbler; but the paragraph in which the remark occurs is so obviously a free translation of Naumann that it cannot be regarded as independent evidence. I have not seen many nests of either of these birds; but in all that I have seen, the nest of the *Acrocephalus* is built of round grass, and the nest of the *Locustella* of flat grass.

on the large end of the egg, sometimes so thickly as to almost conceal the ground-colour. They vary in length from ·8 to ·65 inch, and in breadth from ·59 to ·52 inch.

The Marsh-Warbler has the general colour of the upper parts varying from olive-brown in spring plumage to earthy brown in summer plumage, with a scarcely perceptible shade of rufous after the autumn moult, slightly paler on the rump; the eye-stripe is nearly obsolete; and the innermost secondaries have broad ill-defined pale edges. The breast, flanks, and under tail-coverts are pale buff, shading into nearly white on the chin, throat, and the centre of the belly. After the autumn moult the underparts are suffused with buff. Bill dark brown above, pale below; legs, feet, and claws pale horn-colour; irides hazel.

Freshly moulted birds of this species may always be distinguished from Reed-Warblers by the colour of the rump. In the Marsh-Warbler it is olive-brown, and in the Reed-Warbler russet-brown. There is no difference in the wing-formula of these two species.

Genus HYPOLAIS.

The Tree-Warblers were included by Linnæus in his comprehensive genus *Motacilla.* Bechstein afterwards placed them in the genus *Sylvia,* which Scopoli had made for the Warblers. Various writers have at different times separated the Warblers into different groups, amongst whom was Brehm, who, in the 'Isis' for 1828, p. 1283, founded the genus *Hypolais* for the Icterine Warbler, which therefore becomes its type. Brehm, following Linnæus, misspelt this word "*Hippolais,*" under a mistaken idea of its derivation.

The genus *Hypolais* contains a small group of birds chiefly remarkable for laying eggs having a French-grey or salmon-coloured ground-colour. They form the connecting-link between *Phylloscopus* and *Acrocephalus,* having the nearly even tail of the former and the large bill of the latter. From the large-billed subgeneric group of the former (*Acanthopneustes*), besides the difference in the coloration of the eggs already alluded to, they can only be distinguished by the absence of the pale tips to the wing-coverts—which in *Acanthopneustes* form one, and often two pale bars across the wings. There are four well-defined species belonging to this genus, three of which do not exhibit any great variation of size, wing-formula, or colour. The other species is perhaps more variable than any other member of this large subfamily, and may be divided into six or more races, which are tolerably distinct, although connected together by intermediate forms.

The Tree-Warblers frequent wooded localities, bush-covered marshy districts, gardens, and thickets. All the species of this genus possess considerable powers of song. They build beautiful cup-shaped nests; and their eggs are from four to six in number. Their food is chiefly composed of insects, which they search for amongst leaves and twigs and frequently capture in the air.

The basin of the Mediterranean appears to be the centre of distribution of this genus—one or two species extending their range more to the east, one of them as far as Lake Baikal. One species only is a rare straggler to the British Islands.

HYPOLAIS HYPOLAIS*.

ICTERINE WARBLER.

(PLATE 10.)

Motacilla hypolais, *Linn. Syst. Nat.* i. p. 330 (1766) ; **et auctorum plurimorum**—(*Bechstein*), (*Wolf*), (*Temminck*), (*Naumann*), (*Eversmann*), (*Kaup*), (*Gould*), (*Nordmann*), (*Gray*), (*Werner*), (*Schlegel*), (*Blasius*), (*Heuglin*), (*Lindermayer*), (*Harting*), (*Gurney*), (*Shelley*), (*Keyserling*), (*Sundevall*), *&c.*
Sylvia hypolais (*Linn.*), *Bechst. Orn. Taschenb.* p. 173 (1802).
Muscipeta hypolais (*Linn.*), *Koch, Syst. baier. Zool.* i. p. 170 (1816).
Sylvia icterina, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 194 (1817).
Hypolais hypolais (*Linn.*), *Kaup, Natürl. Syst.* p. 96 (1829).
Hypolais salicaria (*Linn.*), *apud Bonap. Comp. List B. Eur. & N. Amer.* p. 13 (1838).
Ficedula hypolais (*Linn.*), *Keys. u. Blas. Wirb. Eur.* pp. lvi & 184 (1840).
Hypolais icterina (*Vieill.*), *Gerbe, Rev. Zool.* 1844, p. 440.
Ficedula ambigua (*Schl.*), *apud Durazzo, Descr. di Genova*, i. pt. 2, pp. 170, 177 (1846).
Sylvia obscura, *Smith, Ill. Zool. S. Afr., Birds*, pl. 112. fig. 1 (1849).
Phyllopneuste hypolais (*Linn.*), *Schl. Dier. Nederl. Vogels*, p. 58 (1861).
Salicaria italica, *Salvad. Atti R. Ac. Sc. Tor.* iii. p. 268 (1868).

It is somewhat extraordinary that a bird so common in the north of France, Belgium, Holland, and North Germany, and, from the peculiarity of its song and the unique character of its eggs, so impossible to escape detection as the Icterine Warbler, should only have twice been shot in the British Islands. But such appears to be the case. Both these examples were exhibited by Mr. Dresser at the meeting of the British Association at Brighton in 1872. The first was killed on the 15th of June 1848, at Eythorne near Dover, and passed into the collection of Dr. Scott of Chudleigh. The second was shot on the 8th of June 1856, by Mr. J. G. Rathborne, at Dunsinea, on the banks of the river Tolka, in the county of Dublin, and was by him presented to the Royal Dublin Society's Museum. In both cases the peculiarity of the song was the cause of special attention having been directed to the birds; and the details published (of the one in the 'Journal of the Royal Dublin Society,' i. p. 410, and of the other in the 'Zoologist' for 1848, p. 2228) leave no room to doubt the genuineness of the occurrences.

The range of the Icterine Warbler is a very peculiar one. It is a common summer visitor to the north of France, Belgium, Holland, Germany, Italy, and Sicily, but is very rare in the south of France, and entirely absent from Spain. It is common in Denmark, the Baltic Provinces, and South Scandinavia, but becomes much rarer further north, the limit of its range in Norway being lat. 67° and in Sweden and West Russia about 65°. On the Urals it is said only to range as far north as 57°; and it has been recorded east of those mountains from the valley of the Tobol. It is common in Central Russia; but in South Russia it is very rare, and it has not been recorded from the Caucasus. It passes through Greece, Asia Minor, and North Africa on migration, and winters in South Africa, whence it has been received in collections from Ovampo, Damara Land, and the Bechuana country.

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* According to the British-Association rules, the name to be adopted for the Icterine Warbler is *Iduna hypolais*; but as the genus *Hypolais* dates much earlier than that of *Iduna*, it has been generally retained; and there seems no reason why the name *hypolais* should not also be retained in a specific sense, since it has been used by a very large majority of writers.

The Icterine Warbler or Common Tree-Warbler is sometimes known by the misleading name of the Melodious Willow-Warbler. Its song is by no means specially melodious. It has great power, wonderful variety, and considerable compass, but is singularly deficient in melody. Nor is the bird by any means a Willow-Warbler. The Tree-Warblers are a group probably more nearly allied to the Reed-Warblers.

Like most European migrants which seldom or never visit our islands, the Common Tree-Warbler arrives very late at its breeding-grounds. I first made its acquaintance at Valconswaard in 1876. We had been nearly a fortnight in the village, and had identified seventy-six species of birds, besides taking a great number of nests, but no trace of the Common Tree-Warbler was to be found. At length, about the middle of May, a new song was heard, evidently that of a newly arrived Warbler, who screamed and warbled and chuckled and sang voluminously. On the 23rd of May it had become quite abundant, and its song resounded in every hedgerow and garden; and we shot two, which both proved to be male Common Tree-Warblers. It was not until the 28th that we found a nest, containing only one egg. A second nest was brought us on the same day, containing four eggs. Since then I have seen more or less of the bird almost every year, and last spring had another opportunity of watching for its arrival. In the neighbourhood of Brunswick the bird arrived in the first week of May, and by the 6th the males were in full song. The weather was mild; and as Oberamtmann Nehrkorn and I sat smoking our cigars on a bench in his garden, we listened to one of these birds—*Spottvögel* (Mocking-Birds) the Germans call them—hour after hour. He did not seem very anxious to feed; but, perched on a branch, he sang and then apparently listened. Then he flew to another twig and sang and listened, evidently eagerly awaiting the arrival of his mate. The song is somewhat harsh, but very varied, although he repeats every combination of notes two or three times over in rapid succession, like a Song-Thrush. Indeed one might imagine that he had been taught to sing by that bird, exactly as one might fancy a Robin to have had lessons from a Blackbird. Perhaps, on the whole, the song of the Common Tree-Warbler comes nearest to that of the Marsh-Warbler; but often it reminds you strongly of the song of the Sedge-Warbler. At other times you may trace a fancied resemblance to the chirping of the Sparrow, the scolding of the Whitethroat, or the scream of the Swift, but all rattled off at such a rate one after the other, and repeated so often, that it arrests the attention at once. I have heard it in widely different localities, and very often; but in spite of its wonderful variety, I think the song is original and can see no reason for supposing the bird to be more of a mocking bird than the Song-Thrush or Nightingale. Some writers have compared the song to that of the Nightingale; but in quality of voice, in the richness of its tones, and the melody of its notes it is immeasurably inferior to that bird; but because in England the Common Tree-Warbler happens to be an occasional visitor, and such a very rare one, I must confess that his song was ten times as attractive to me as that of the Nightingale in the next plantation. But the best one can say of his voice is that it is a very high soprano. If he were a common bird, one might say he screamed, or even shrieked. His song does not fill the ear like that of the Nightingale.

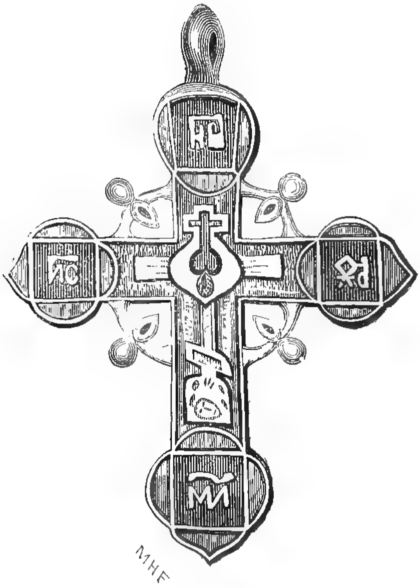
The Common Tree-Warbler is essentially a lover of isolated trees. He does not seem to care very much for the thick forest, but delights to sing his song and build his nest in the trees in the gardens and the hedgerows. Like the Robin, he seems to like to be close to the houses; and, like that bird, he has the reputation of being very quarrelsome and very jealous of the approach of any other of his species on his special domain. His alarm-note is a *tek, tek, tek,* often heard in an angry tone.

In its habits this bird combines the actions of a Tit with those of a Flycatcher, feeding for the most part on insects; but in autumn he is said to vary his diet with ripe cherries and the fruit of the currant, elder, &c.

The nest of the Common Tree-Warbler is a very beautiful one, and is generally built in the fork of a small tree eight or ten feet from the ground. It is quite as handsome as that of the Chaffinch, but slightly smaller, more slender, and deeper. It is composed of dry grass deftly interwoven with moss, wool, spiders' webs, thistledown, strips of bark, and lichen, lined with fine roots, grass-stalks, and horsehair. The eggs are four or five in number, very rarely six. They are brownish pink in ground-colour, evenly spotted and more rarely streaked with very dark purplish brown, which occasionally approaches black. The underlying markings are very indistinct; and some specimens are very finely streaked with lighter brown, almost like a Red-winged Starling's egg. Some eggs have the spots much smaller and finer than others. They vary in length from ·78 to ·65 inch, and in breadth from ·6 to ·5 inch. They approach very closely the eggs of the nearly allied *H. polyglotta,* but are on an average larger and do not exhibit so many of the faint scratchy markings.

The adult male Icterine Warbler in spring plumage has the general colour of the upper parts, including the lores, ear-coverts, and the sides of the neck, olive-green; a somewhat indistinct greenish-yellow eye-stripe extends from the base of the bill, losing itself behind the eye; the quills are brown, narrowly edged and somewhat more broadly tipped with greenish white; the wing-coverts and innermost secondaries are still more broadly edged with browner white; the tail-feathers are brown, with very narrow pale edges and generally with very indistinct traces of transverse bars. The underparts, including the axillaries, are uniform greenish yellow, many of the feathers on the thighs and under wing-coverts having brown centres. Bill dark brown above, pale horn-colour below; legs, feet, and claws bluish grey; irides hazel.

The female scarcely differs from the male. After the autumn moult, the olive-green of the upper parts is slightly greyer and the greenish yellow of the underparts paler and less green. Birds of the year scarcely differ from adults in autumn plumage.



Genus SYLVIA.

The genus *Sylvia* was established by Scopoli in 1769, in his 'Annus I. Historico-Naturalis,' p. 154, for the reception of the Warblers, which were included by Linnæus in his comprehensive genus *Motacilla*. Scopoli did not designate any type, and his genus has been reduced in its dimensions by the removal of various groups of birds at different times by different writers; but as the Common Whitethroat is the *Motacilla sylvia* of Linnæus, it becomes of necessity the type of the genus *Sylvia*, however much restricted.

The genus *Sylvia* contains about a score species of birds closely allied to *Phylloscopus*, *Acrocephalus*, and *Hypolais*. The first primary is always very small, and in many species it is so minute that it does not project beyond the primary-coverts; in none does it project beyond those feathers more than ·3 inch, and it is never so long as half the length of the second primary. The tail is nearly even in two species; in three species the outside feathers are about ·1 inch shorter than the longest, in four species about ·2, in four species ·25, in four species ·35, and in one ·4. The bill is shorter and less depressed at the base than in *Phylloscopus*; and the rictal bristles are only slightly developed. The feet and tarsus are stout; and the latter is scutellated in front. The males of many of the species have black heads, and most of them have white on the outside tail-feathers. Most of the species have the tail shorter than the wing. In two the tail is slightly longer than the wing, in another more decidedly longer, and in two others the tail is still more lengthened.

The centre of distribution of the genus is undoubtedly the basin of the Mediterranean, and several species are resident on its shores. One is a resident as far north as the south of England; but most of the species are migratory, breeding in Europe and wintering in Africa. Several extend their range eastwards as far as Turkestan in the breeding-season, wintering in India; and one species, at least, has been found in China. Seventeen species are European; but only half of these have any claim to be considered British birds: one is a resident, four regular summer visitors, and three accidental stragglers on migration to our islands.

The true Warblers are almost exclusively insectivorous; but in autumn most, if not all, of the species occasionally feed on fruit. They are all songsters of greater or less merit. Their nests are built either amongst bushes or coarse vegetation, are cup-shaped, and are usually slight structures of dry grass-stems, hairs, &c. Their eggs vary considerably in number and colour, and will be treated of in detail under the respective species.

The genus *Sylvia* has been subdivided by various writers into no less than eleven genera; but I see no reason whatever to alter the arrangement I made in the fifth volume of the British-Museum 'Catalogue of Birds.' The only group which might possibly be deserving of generic rank would be that containing the Rufous Warbler and its near ally (if, indeed, the latter be more than subspecifically distinct) the Grey-backed Warbler. It does not seem worth while to make a separate genus to contain only one, or at most two, birds, and for which a new generic name would have to be invented, as that which has generally been applied to them was originally applied to the Nightingale.

SYLVIA NISORIA.

BARRED WARBLER.

(Plate 10.)

Motacilla nisoria, *Bechst. Naturg. Deutschl.* iv. p. 580, pl. xvii. (1795); **et auctorum plurimorum**—(*Vieillot*), (*Naumann*), (*Gray*), (*Bonaparte*), (*Schlegel*), (*Dresser*), *&c.*
Sylvia nisoria (*Bechst.*), *Bechst. Orn. Taschenb.* i. p. 172 (1802).
Curruca nisoria (*Bechst.*), *Koch, Syst. baier. Zool.* i. p. 431 (1816).
Adophoneus nisorius (*Bechst.*), *Kaup, Natürl. Syst.* p. 28 (1829)
Nisoria undata (*Brehm*), *Bonap. Comp. List B. Eur. and N. Amer.* p. 15 (1838).
Philacantha nisoria (*Bechst.*), *Swinh. Proc. Zool. Soc.* 1871, p. 355.

The only claim of the Barred Warbler to be considered a British bird rests upon a single example, shot more than forty years ago near Cambridge—but apparently not brought under the notice of ornithologists until March 1879, when Prof. Newton exhibited it at a meeting of the Zoological Society of London, a record of which may be found in the 'Proceedings' for that year, page 219. It was shot by a porter of Queen's College of the name of Germany, in a garden not far from the College. There does not seem to be any doubt as to the genuineness of the specimen, which I had the pleasure of seeing; and the circumstances described in connexion with its capture agree with what we know of the habits of the bird. It is somewhat remarkable that a migratory bird breeding in South Sweden has not more often strayed accidentally to our islands. Such a well-marked species could scarcely be confounded with any other bird; but from its skulking habits it may have been passed by unnoticed.

Besides South Sweden, it breeds in Germany east of the Rhine, Transylvania, South Russia, Persia, and Turkestan, as far east as Kashgar. It passes through South-eastern France, Italy, Turkey, Greece, Asia Minor, and North-east Africa, on migration, and probably winters somewhere in Central Africa, as it is said to pass through Nubia in spring and autumn, but has not been recorded from the Transvaal. Its alleged occurrence in China is probably an instance of mistaken identification.

As is the case with most continental birds whose range does not extend to the British islands, it arrives late at its breeding-quarters, and leaves them early. The period of the spring migration of birds in Germany lasts about eight weeks, from towards the end of March to the middle of May; but more than half the summer migrants have arrived before the Barred Warbler is seen. Its notes are seldom heard before the end of April. Although it is very shy, seldom venturing into gardens near houses, and somewhat local, very rarely being seen in the forest, its lively song prevents it from being overloooked. Its favourite resort is dense underwood, or plantations of young trees. Its song resembles that of the Whitethroat, some of its notes being quite as harsh as those of that bird; but the finest parts are almost as rich as the warble of the Blackcap.

Its call-note, according to Naumann, resembles the syllable *chek*; and its alarm-note is said by the same authority to be a snarling *rhar*, which, when pronounced quickly, sounds like *r-r-r-r-r*. It also resembles the Whitethroat in its habits and in its harsh call-notes, which frequently resound from some tangled mass of briars and thorns on the margin of a pool or ditch; and also, like the Whitethroat, it tosses itself up from the top of a bush to catch a fly in the air or warble a snatch of song. Shy, active, and skulking, the Barred Warbler is a difficult bird to shoot, and generally a difficult one to find when shot.

The food of the Barred Warbler is principally insects; but in autumn, according to Naumann, it lives largely on various fruits, such as currants, elder-berries, &c. It is a bird very rarely seen on the ground; and in passing from tree to tree its flight, like that of its congeners, is undulating. The Barred Warbler is, according to Naumann, one of the earliest birds to leave for southern climes, many departing in August before the moult is completed.

The nest is not like that of most Warblers, a slender structure, so loosely made as to be semitransparent, but is somewhat bulky and compact. It is composed of dry grass-stalks and roots, with generally some small-leaved plants, cobwebs, thistle-down, or other woolly material mixed with it. Outside it is rough enough; but inside it is very neat and round, rather deep, and lined with a few fine roots, cobwebs, or horsehair. The eggs are usually four or five in number, and in rare instances six; they are laid in the last week of May. The nest is well concealed, and is usually built in a thorn-bush not far from the ground. It is said to be sometimes built almost on the ground; and an instance is recorded in the 'Journal für Ornithologie' (1859, p. 455), of a nest of this species which was built on the topmost twigs of a birch 25 feet from the ground.

The eggs of the Barred Warbler are very characteristic, and cannot easily be confounded with those of any other bird. Although much larger, they very closely resemble in colour and markings eggs of the Grey Wagtail. The ground-colour is dull buffish white; the underlying spots are grey, and, though somewhat obscured by the overlying layer of ground-colour, they appear distinct and bold enough when carefully examined. In the greater number of eggs the overlying spots are either absent altogether or are so small and pale as to be observed with difficulty; but in some cases, though rarely, they are tolerably well defined and are brown, and much more numerous than the underlying spots (which they almost conceal), and are, like them, principally distributed at the larger end of the egg. They vary in length from ·9 to ·8 inch, and in breadth from ·65 to ·6 inch.

The adult male Barred Warbler in spring plumage has the general colour of the upper parts brownish grey, browner on the quills, wing-coverts, and innermost secondaries, and slightly greyer on the head, rump, upper tail-coverts, and tail; the wing-coverts, the innermost secondaries, the outside tail-feathers, the feathers of the rump and the upper tail-coverts, and occasionally the scapulars, forehead, and lower back are more or less distinctly margined and broadly tipped with greyish white, the pale tips being emphasized by a narrow transverse subterminal dark brown bar; similar bars are present more or less distinctly on nearly every feather of the underparts, which are otherwise greyish white, slightly browner on the breast, flanks, thighs, and under tail-coverts; the axillaries and under wing-coverts are buffish white, generally transversely barred with dark grey. Bill dark brown above, pale at the base of the lower mandible; legs, feet, and claws pale slaty brown; irides pale yellow. The female scarcely differs from the male. After the autumn moult the upper parts are slightly browner, and the barring, both above and below, is more distinct. Birds of the year are browner both above and below, and the bars on the under surface are generally confined to the under tail-coverts.

SYLVIA ORPHEUS*.

ORPHEAN WARBLER.

(PLATE 10.)

Ficedula curruca, *Briss. Orn.* iii. p. 372 (1760).
Motacilla hippolais, *Linn. apud Bodd. Table Pl. Enl.* p. 35 (1783).
Motacilla hortensis, *Gmel. Syst. Nat.* i. p. 955 (1788).
Sylvia hortensis (*Gmel.*), *Lath. Ind. Orn.* ii. p. 507 (1790).
Sylvia atricapilla (*Linn.*), var. γ, *Lath. Ind. Orn.* ii. p. 507 (1790).
Sylvia orphea, *Temm. Man. d'Orn.* p. 107 (1815); **et auctorum plurimorum**—*Meyer, Naumann,* (*Bonaparte*), *Cabanis,* (*Loche*), *Heuglin, Gray, Salvadori, Newton, Dresser,* &c.
Sylvia grisea, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 188 (1817).
Curruca orphea (*Temm.*), *Boie, Isis,* 1822, p. 553.
Sylvia crassirostris, *Cretzschm. Rüpp. Atlas,* p. 49, pl. 33. fig. *a* (1826).
Curruca crassirostris (*Cretzschm.*), *Bonap. Consp.* i. p. 294 (1850).

The Orphean Warbler was admitted into the British list on the strength of an example said to have been obtained in a small plantation near Wetherby on the 6th of July, 1848. The occurrence of this bird, which was a female, and was said to be accompanied by its mate which was not obtained, was recorded by Sir William Milner in the 'Zoologist' for 1848, p. 2588. A second example, a bird of the year, was caught in June 1866, near Holloway, in Middlesex, and was kept alive by Sergeant-Major Hanley for nearly six months. This occurrence was recorded by Mr. Harting in the 'Field' for the 22nd of April 1871. One or more nests with eggs, supposed to be those of this species, have been taken in England. Under the most favourable circumstances, even supposing no error to have crept into the history or identification of any of these occurrences, the Orphean Warbler can only be looked upon as a very rare and accidental straggler to our islands.

On the continent the range of this bird is very restricted. It appears to be a summer migrant to all the countries lying in the basin of the

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* The Orphean Warbler has been peculiarly fortunate in its name, which appears to have fascinated both Professor Newton and Mr. Dresser to such an extent that instead of carrying out the rules of the British Association regardless of consequences, as is their wont, they have actually in this case thrown overboard the Stricklandian Code and adopted the *auctorum plurimorum* principle, allowing themselves, for once in their lives at least, to be guided in a question of nomenclature by common sense instead of ornithological pedantry. There can be no doubt that, according to the Stricklandian Code, the bird should be called *Sylvia hortensis*, the name in common use for the Garden-Warbler; but the absurdity in carrying out the rules in this case is so transparent that not even their most enthusiastic devotees have attempted it.

Mediterranean and the Black Sea, and eastward as far as Persia and Turkestan. North of the valley of the Rhone its range extends through the Vosges Mountains into Luxemburg; and it has occurred accidentally in Belgium and on Heligoland. The European birds winter in the valley of the Gambia, and probably also in many parts of Central Africa; but the Turkestan and possibly some of the Persian birds appear to migrate in autumn into Western India. This partial separation of the species into two colonies has evidently given rise to a variation of sufficient importance to be regarded as subspecific. The difference between the two forms is principally in the length of the bill. It seems probable, however, that the summer ranges of the two winter colonies overlap, and that where both occur they interbreed, as examples from Asia Minor and Palestine are intermediate. In typical examples of *Sylvia orpheus* from Europe the culmen varies in length from 0·68 to 0·6 inch, in intermediate examples from Asia Minor and Palestine from 0·74 to 0·64, and in typical examples of *Sylvia orpheus*, var. *jerdoni*, from Persia, Turkestan, and India from 0·76 to 0·66.

In Greece the Orphean Warbler is not one of the latest of the summer migrants, as it arrives during the first half of April. In Asia Minor it is frequently seen in the latter half of March. It is by no means a conspicuous bird, except when singing, which it prefers to do perched on the top of an olive or other small tree. It is at all times very wary, and frequents, for the most part, well-wooded districts. In its winter quarters in India it is described by Jerdon as "not rare in Southern India during the cold weather;" and he adds that "it frequents groves, gardens, hedges, single trees, and even low bushes on the plains; is very active and restless, incessantly moving about from branch to branch, clinging to the twigs and feeding on various insects, grubs, and caterpillars, and also on flower-buds." There is no doubt that it is principally an insect feeder, but it is said to be, like most of its congeners, fond of fruit in autumn.

My first introduction to the Orphean Warbler was among the olives and the vines in the valley on the other side of the mountains east of Smyrna, where Dr. Krüper called my attention to its song. My first impression was one of disappointment. The song is louder than that of the Blackcap; but I thought it somewhat harsher. Its alarm-note is very loud, as loud as that of a Blackbird. In the Parnassus I found it very common, and obtained thirteen nests between the 3rd and the 21st of May. They were easy to find in the bushes, which were scattered over the rocky ground above the region of the olive and the vine; but when we got into the pine-region they disappeared. My friend Captain Verner informs me that he has found the nests of this bird in Spain, placed near the summit of young cork-trees about twelve feet from the ground. The nest is a tolerably substantial one, and deep, composed of dry grass and leafy stalks of plants. Inside it is built of finer grasses, and lined sparingly with thistle-down or the flower of the cotton-grass. Little or no attempt seems to be made to conceal it. It is generally placed on the branch of a tree not more than a few feet from the ground, and sometimes near the top of a bush. Four or five was the usual number of eggs. Some of the nests contained eggs very similar in colour to average examples of those of the Orphean Warbler, but much larger. Dr. Krüper considered these eggs to be those of the Cuckoo. The latter bird was common enough; and occasionally we got nests of the Orphean Warbler with Cuckoo's eggs in them of the ordinary type. Similar large eggs of the Orphean Warbler occur also in Spain, and are by many ornithologists considered to be eggs of the Cuckoo; but this matter requires further investigation.

The ground-colour of the eggs of the Orphean Warbler is white, sometimes faintly tinted with grey and sometimes tinted with brown. The spots are almost always much more developed at the large end than at the small end, and are sometimes very small, but generally vary in size from dust-shot to No. 4 shot, in rare instances even larger, two or three being confluent and forming irregular blotches. The colour of the overlying spots varies from olive-brown to nearly black, whilst the underlying spots naturally take the tint of the ground-colour of the egg, and vary from pale grey to buff. They vary in length from ·85 to ·75 inch, and in breadth from ·63 to ·56 inch.

In the adult male in spring plumage of the Orphean Warbler the general colour of the upper parts is dull slate-grey, shading into pale brown on the margins of the innermost secondaries; the head to below the eyes is brownish black in western examples, and deep black in those from the east; the outside tail-feather on each side is white on the outside web at the apex, and for some distance on the inside web near the shaft; and the next two feathers on each side have wedge-shaped white spots at the apex. The underparts are white, shading into pale greyish brown on the sides of the breast, flanks, thighs, axillaries, under wing-coverts, and the centres of the under tail-coverts. In the extreme western portion of its range this pale greyish brown of the underparts becomes a pale buffish brown. Bill dark brown, lower mandible pale at the base. Legs, feet, and claws bluish grey; irides pale yellow. In the female the head is only slightly darker and browner than the back. It is not known that any change takes place in the colour of the plumage consequent on the autumn moult. Birds of the year scarcely differ from the adult, except that both sexes appear in the plumage of the female. The plumage of the males after their first spring moult is intermediate between that of the adult male and female.

The Orphean Warbler, especially the adult males, but also more or less the females and males of the year, may be distinguished from the Blackcap by its much whiter throat, and by having the cheeks and the nape of the same colour as the head, instead of being, as in the Blackcap, the same colour as the sides of the throat. Although the Orphean Warbler is on an average a larger bird than the Blackcap, the dimensions of the wing and tail respectively overlap; but the length of the bill appears to be an invariable guide. In the Orphean Warbler the culmen, measured from the angle of its junction with the skull, never measures less than ·6 inch, whilst in the Blackcap it varies from ·58 to ·5. A still more reliable distinction may be found in the colour of the outside tail-feather, which in the Orphean Warbler is always white for some distance from the tip, and in the Blackcap is exactly the same as the other feathers.

There seems to be considerable difference in the intensity of the colouring of the black head of the adult male of this species—so much so that Professor Newton, having apparently had access to too small a series of skins, has arrived at the conclusion that the black head "after the autumnal moult changes to dark grey." This is certainly not the case, as the examples with the blackest heads I have ever seen were collected by Brooks at Etawah in November; and it seems to me probable that, in addition to having a longer bill, the eastern race (*S. orphea*, var. *jerdoni*) has also a blacker head. Examples from Asia Minor are somewhat intermediate in this respect.

SYLVIA ATRICAPILLA.

BLACKCAP.

(PLATE 10.)

Ficedula curruca atricapilla, *Briss. Orn.* iii. p. 380 (1760).
Motacilla atricapilla, *Linn. Syst. Nat.* i. p. 332 (1766); **et auctorum plurimorum** —(*Latham*), (*Bechstein*), (*Temminck*), (*Gray*), (*Bonaparte*), (*Schlegel*), (*Loche*), (*Newton*), (*Gould*), *&c.*
Sylvia atricapilla (*Briss.*), *Scop. Ann. I. Hist. Nat.* p. 156 (1769).
Curruca atricapilla (*Briss.*), *Koch, Syst. baier. Zool.* i. p. 155 (1816).
Monachus atricapilla (*Briss.*), *Kaup, Natürl. Syst.* p. 33 (1829).
Curruca heinekeni, *Jard. Edinb. Journ. Nat. & Geogr. Sc.* i. p. 243 (1830).
Curruca nigricapilla, *Brehm, Vög. Deutschl.* p. 417 (1831, *nec Cab.*).
Curruca pileata, *Brehm, Vög. Deutschl.* p. 418 (1831).
Ficedula atricapilla (*Briss.*), *Blyth, Rennie's Field Nat.* i. p. 310 (1833).
Curruca rubricapilla, *Landbeck, Vög. Würtemb.* p. 44 (1834).
Philomela atricapilla (*Briss.*), *Swains. Classif. B.* ii. p. 240 (1837).
Epilais atricapilla (*Briss.*), *Cab. Mus. Hein.* i. p. 36 (1850).
Sylvia naumanni, *Von Müller, Naum.* 1851, pt. 4, p. 26.
Sylvia (Curruca) ruficapilla, *Naum. Vög. Deutschl.* xiii. p. 411 (1853).
Sylvia heinekeni (*Jard.*), *Gray, Hand-l. B.* i. p. 213. no. 3018 (1869).
Sylvia ruficapilla (*Naum.*), *Gray, Hand-l. B.* i. p. 213. no. 3020 (1869).

The Blackcap Warbler, or, as it is generally called, the Blackcap, is one of the best-known of all the Warblers that visit us in spring and remain on our islands during the summer to rear their young. It is also, though by no means the earliest, a comparatively early migrant, and may be noticed in its accustomed haunts by the middle of April. It is even very probable that a few Blackcaps remain in their old haunts through the winter; for many examples have been observed at that season. A female bird of this species was shot in the winter of 1881 near Sheffield, and is now preserved in the Museum there; and other instances have come under Dixon's notice. Mr. Rodd also states that the bird is sometimes found in winter near Penzance. The Blackcap is a regular spring migrant to most of the wooded parts of England and Wales; and it would appear to be increasing in numbers in some counties, as, for instance, in Cornwall. Even in England the bird is to a certain extent a local one. Mr. Cordeaux writes that the Blackcap passes regularly through N.E. Lincolnshire in the spring and autumn on migration, but that its nest is rarely found. In the Channel Islands the bird, according to Professor Ansted, is confined to Guernsey; and Cecil Smith states that it is generally known in that island as the "Guernsey Nightingale," where it is a regular though not common summer visitant. In Scotland the Blackcap becomes less common and still more local. Mr. Gray states that, although nowhere numerous, it is "widely distributed from near Cape Wrath to the shores of the Solway." It has been obtained as late as the 8th of November in Caithness, and is an occasional visitor to the Orkneys. The late Dr. Saxby was the first to record this] bird as a visitor to the Shetland Islands. He writes:—"It is only during the last few years that I have observed it. Now, however, a few—males, females, and young—appear regularly in the gardens at Buness and Halligarth during the months of September and October. A pair once attempted to build in a currant-bush at Halligarth about the beginning of June, but one of the birds was, of course, killed by an odious cat." He also states that it has been observed there as late as the 10th of November. In Ireland the Blackcap is said to be even more local than in Scotland, though it has been occasionally observed even in winter.

On the continent the Blackcap is generally distributed throughout Europe—in Scandinavia ranging as far north as lat. 66°, in the valley of the Dwina to lat. 62°, and on the Ural mountains to lat. 57°; and Dr. Finsch states that in the museum of Professor Slovzow at Omsk there is an example of this bird said to have been obtained in the neighbourhood. To the south its range extends into North Africa; and it may be said to be a resident in the basin of the Mediterranean, examples being found both on the northern and southern shores at all times of the year. To the south-east it is found in Asia Minor and Palestine, and its range extends through the Caucasus to Western Persia. How far south the winter range of this bird extends is not very accurately ascertained; but it has been obtained at Senegal and Gambia in the west, and Nubia and Abyssinia in the east. It appears also to be a resident in the Cape-Verd Islands, Madeira, the Canaries, and the Azores. Curiously enough, in the two latter localities a variety occasionally occurs in which the black on the crown extends to the neck, and in some specimens as far as the shoulders and the breast. To this variety the name of *Sylvia heinekeni* has been given; but it seems doubtful whether it be any thing more than a partial melanism, as it is said to occur singly in broods of the normal colour. In South-eastern Europe the Blackcap is very seldom found during the breeding-season, its place being apparently taken by the Orphean Warbler, a species already mentioned as an accidental visitor to this country. There are also in South Europe other Warblers having black heads; but they may always be distinguished by their smaller size, and by having the tail longer instead of shorter than the wings.

The haunts and breeding-grounds of the Blackcap are in the most secluded places—not, as a rule, in the deepest woods, but in shrubberies and plantations where the undergrowth is unusually dense, in gardens, tangled hedgerows, and those country lanes where brambles and briars hang over the hazel- and thorn-bushes. Indeed the Blackcap is to a certain extent partial to open places, but to those near some cover to which it can retire the instant it is disturbed. Nothing perhaps in bird-music sounds more beautiful and charming than the song of the Blackcap; and in the pairing-season it is heard to best advantage, when those combats for the choice of mates so frequently occur. Dixon thus describes its song:—"How rich and melodious is the song of the Blackcap! It is given forth from the topmost branches of the tallest trees, from the more lowly shrubs, and from the midst of the dank and dense vegetation where he builds his nest. His notes are varied, almost as much so as the vernal notes of the Song-Thrush. Of the peculiar richness of its tone no pen can adequately speak: it must be heard to be appreciated. The loudness of its tones will not unfrequently cause you to suspect a much larger bird is uttering them; and in the spring I have heard him sing as loud as the Thrush. If you wish to see this little warbler in the act of singing you must steal a march upon him by noiselessly creeping amongst the dense undergrowth, and, provided you advance 'with cautious step and slow,' your wish will be gratified. You will find that he sings as he hops from branch to branch in search of insects, or as he remains stationary for minutes together, pouring forth his notes, his little throat quivering and swollen, his head turning restlessly from side to side, and his jet-black crown contrasting so richly with the golden green of the vegetation around. And then how beautifully he modulates his music! You hear a soft plaintive note sounding as though its author were a hundred yards away; gradually it rises in its tone; you think the bird is coming nearer; louder and louder become the notes, till they sound as if a Blackbird, Song-Thrush, Wren, Robin, and Warbler were all singing together. You perchance cast your eyes into the branches above, and there see the little black-capped songster, and after watching him find that all these lovely notes, low and soft, loud and full, come from his little throat alone and when at the same distance from you—so great are his powers of modulation."

It is probable that the Blackcap sings throughout the winter. I have heard it in Italy in full song on the 24th of February. On the outskirts of the city, down along the left bank of the Arno, lies the "Rotten Row" of Florence, the Cascine, a narrow plantation, two miles along, intersected with walks and drives. Some of the trees are spruce-fir; many are evergreen oak; and many of them are overgrown with ivy; so that the plantation looks quite green even in winter. Although it was very cold in the shade, the blazing sun was hot enough; and from end to end the Cascine rang with a chorus of bird-music, amongst which by far the most prominent was that of the Blackcap. There were generally three or four singing against each other; and sometimes they quite drowned the notes of other birds—the Robins, the Blackbirds, and the shrill chatter of the Italian Sparrow.

Its call-note is a harsh *tac* or *tec* quickly repeated; and when alarmed it scolds like a Whitethroat.

The Blackcap is a restless little bird, and it is only now and then that he allows you a brief moment's glimpse of him as he glides about his favourite cover. He hops quickly from branch to branch, sometimes appearing on the topmost twigs or on the outside ones, but generally confining himself to the thickest parts of the brake.

Although the Blackcap arrives somewhat early and pairs soon after its arrival, its nest is rarely found before May, when the vegetation is sufficiently advanced to provide the means of concealment. The time of nesting may possibly be regulated by the abundance or otherwise of the food on which its young are reared, such as caterpillars and small insects. The site of its nest is usually in the most secluded part of its haunt. Sometimes it is placed amongst the briars and brambles, growing but a few inches from the ground, in the secluded corner of a plantation or shrubbery, and more rarely in a tuft of herbage growing thickly round some stunted bush, and very often in the hedges, amongst the woodbine. Dixon has also known it in the branches of the holly, and in one instance in an elder tree. It is very often placed near water, amongst the mass of shrubs usually found on the banks of a woodland stream. It is made of dry grass-stems, leaf-stalks, a little moss, and coarse roots, cemented together with a few cobwebs and insect-cocoons, and lined with a few horsehairs. Although very slight in structure, it is well built, very compact, and most beautifully rounded. The eggs of the Blackcap are from four to six in number, sometimes only three, in cases where the birds have laid again after their first clutch has been taken. They are subject to considerable variation in colour, although eggs in the same clutch resemble each other. There are certainly three distinct types of the eggs of this Warbler. The usual type is dirty white in ground-colour, suffused with olive-brown or yellowish brown, clouded with darker tints of the same colour, and here and there marked with rich brown spots and sometimes a few streaks. The second type closely resembles certain varieties of the eggs of the Barred Warbler: they are the palest of bluish white in ground-colour; and most of the markings are underlying ones of violet-grey, with a few surface spots and blotches of yellowish brown, intermingled with one or two spots and streaks of dark brown. The third, and perhaps the most beautiful type, certainly the rarest, is uniform pale brick-red in colour, indistinctly marbled with darker shades, and sparingly spotted and streaked with dark purplish brown. The usual type of the Blackcap's egg very closely resembles the eggs of the Garden-Warbler; but they are perhaps more uniformly clouded and brighter in colour than those of that bird. They vary in length from ·85 to ·75 inch, and in breadth from ·6 to ·55 inch.

Shy and wary as the Blackcap is, still in the nesting-season it is often most trustful, or, rather, allows its love for its eggs and young to master its otherwise shy disposition. When the old birds are sitting (either the male or female, for both may be observed to do so), they will allow a very near approach ere gliding from the nest. When thus disturbed the parent bird, especially if it be the female, manifests its displeasure by uttering harsh hissing notes, and will sometimes approach within a few feet of the observer, with feathers ruffled, full of anger at his intrusion. Dixon has more than once observed the male Blackcap sing when sitting on the eggs; and he was often led by the cock bird's song to the nest; for the bird warbles some of his loudest strains from the twigs that support it. It is doubtful if the Blackcap rears more than one brood in the year; but should the first nest be destroyed, the old birds will renew their attempts to rear a brood, usually building a fresh nest close to the site of the previous one.

Although the Blackcap feeds to a very great extent on insects, these are by no means its only food. It is probably more of a fruit and berry feeder than any other of our Warblers; and it is doubtless owing to this circumstance that the bird occasionally remains in our islands through the winter. In addition to insects it feeds on all kinds of garden fruit, such as currants, raspberries, and gooseberries, and also on cherries; and after these fruits are over, it eats the berries of the ivy and the mountain-ash. Upon its arrival here in April the Blackcap may sometimes be seen regaling on the last year's ivy-berries which still remain. Its young are largely fed on caterpillars and grubs; and it is sometimes seen to pursue and capture an insect on the wing. It is said by Irby to feed on the seeds of the "pepper-tree" (*Schinus molle*); and Krüper states that in July and August, when the figs are ripe, it comes in great numbers to the trees.

The Blackcap ceases to sing as soon as the young are hatched; and it is consequently difficult to determine the precise date of its departure. A great many Blackcaps undoubtedly leave our shores in September—possibly all our indigenous birds, except the few stragglers tempted to remain during the winter; and it may be observed that the males are the first to leave in autumn, as they are the first to arrive in spring.

The Blackcap has the general colour of the upper parts bluish grey slightly suffused with olive-brown, especially on the margins of the quills and tail-feathers; the forehead and the crown are black. The underparts are pale bluish grey, shading into white on the centre of the belly; the axillaries and the under wing-coverts are white. Bill dark brown; legs, feet, and claws bluish grey; irides hazel. The female differs from the male in having the black on the head replaced by rusty brown. After the autumn moult the upper parts in both sexes are more suffused with brown, and the underparts, cheeks, and nape are buffish brown. The male in first plumage resembles the female, and is said to attain the black head in the first autumn by a change in the colour of the feathers and not by a moult. It is also alleged that this bird has no spring moult; but these statements require verification. The following facts tend to confirm the natural conclusion that this species does not differ in these respects from its congeners:—A male, which I shot in Heligoland on the 2nd of October, evidently a bird of the year, has a black head, but each feather is broadly tipped and margined with reddish brown; these feathers would probably be moulted early in the following year into the black feathers of the adult. The exact date of the spring moult appears to be very uncertain; but, as Naumann states, no doubt the spring plumage is attained by a change of feather. I have an example, obtained in Asia Minor on the 18th of December, which has begun to moult its tail-feathers; and I have another, obtained in Heligoland in May, in which one of the outside tail-feathers has not attained its full length, whilst examples obtained in the Florence market on the 1st of March have all the appearance of birds which have only just completed their moult. If this bird moults very early in the year, as the Garden-Warbler certainly does, this fact may explain the arrival of many birds in our islands in spring in somewhat abraded plumage; but some examples have the edges of the quill- and tail-feathers so extremely perfect that it is impossible not to believe that they have not only had a spring moult, but probably, from some cause or other, they moulted somewhat later than usual, and were fortunate enough to have fine weather during their migration.

SYLVIA HORTENSIS*.

GARDEN-WARBLER.

(PLATE 10.)

Ficedula curruca minor, *Briss. Orn.* iii. p. 374 (1760).
? Motacilla salicaria, *Linn. Syst. Nat.* i. p. 330 (1766).
Motacilla hippolais, *Linn. apud Tunst. Orn. Brit.* p. 2 (1771).
? Motacilla borin, *Bodd. Tabl. Pl. Enl.* p. 35 (1783).
Sylvia simplex, *Lath. Gen. Syn. Suppl.* i. p. 287 (1787).
? Motacilla passerina, *Gmel. Syst. Nat.* i. p. 954 (1788).
Sylvia hortensis (*Gmel.*), var. β, *Lath. Ind. Orn.* ii. p. 507 (1790).
Motacilla hortensis, *Gmel. apud Bechst. Naturg. Deutschl.* iv. p. 550, pl. xiii (1795).
Sylvia hortensis, *Gmel. apud Bechst. Orn. Taschenb.* p. 169 (1802); **et auctorum plurimorum**—*Wolf, Temminck, Naumann, Jenyns, Eversmann, Macgillivray, Keyserling, Blasius, Nordmann, Gray, Sundevall, Lindermayer, Schlegel, Heuglin, Degland, Gerbe, Salvadori, Gurney,* (*Sharpe*), (*Gould*), *Shelley, Harting,* (*Fleming*), (*Selby*), (*Cabanis*), (*Bonaparte*), (*Thompson*), (*Loche*), *&c.*
Curruca hortensis (*Gmel.*), *apud Koch, Syst. baier. Zool.* i. p. 155 (1816).
Sylvia ædonia, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 162 (1817, *partim*).
Epilais hortensis (*Gmel.*), *apud Kaup, Natürl. Syst.* p. 145 (1829).
Curruca brachyrhynchos, *Brehm, Vög. Deutschl.* p. 416 (1831).
Curruca grisea, *Brehm, Vög. Deutschl.* p. 416 (1831, *nec Vieill.*).
Adornis hortensis (*Gmel.*), *apud Gray, List Gen. B.* p. 29 (1841).
Sylvia salicaria (*Linn.*), *apud Newton, ed. Yarr. Br. B.* i. p. 414 (1873).

The Garden-Warbler, so far as can be ascertained, was first described by Willughby and Ray from an example which was sent to them by Mr. Francis Jessop, of Broom Hall, Sheffield. Francis Jessop was one of the earliest members of the Royal Society, and appears to have been well acquainted with the principal literary men of his day. Ray, in his preface to the 'Ornithologia,' acknowledges his assistance in furnishing them with descriptions and examples of rare birds from the neighbourhood of Sheffield. Ray was his frequent guest at Broom Hall; and Willughby in his will made Ray and Jessop, together with three other gentlemen, his executors.

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* Professor Newton and Mr. Dresser have done their best to cause the name of *Sylvia hortensis* to be rejected in favour of that of *Sylvia salicaria.* There is considerable circumstantial evidence that Linnæus intended to describe the Garden-Warbler as *Motacilla salicaria*; but it is impossible to understand how the authors above named can reconcile the vague diagnosis of Linnæus (containing, amongst others, the character "supercilia alba" and the supplementary note "pedes fulvi," neither of which apply to the Garden-Warbler) with the law in the Stricklandian Code requiring that names which have never been "clearly defined" should be rejected. As was to be expected from such a blundering description, this name of Linnæus has been transferred from one bird to another by various writers until it has ceased to have a definite meaning. *Motacilla salicaria,* Linn., apud Nilsson et Newton, is the Garden-Warbler; *Motacilla salicaria,* Linn., apud Bechstein (Orn. Taschenb.) et Meyer et Wolf, is the Aquatic Warbler; *Motacilla salicaria,* Linn., apud Latham et Fleming, is the Sedge-Warbler; *Motacilla salicaria,* Linn., apud Brehm, is the Marsh-Warbler; *Motacilla salicaria,* Linn., apud Bechstein (Naturg. Deutschl.), is the Reed-Warbler; *Motacilla salicaria,* Linn., apud Pallas, is the Booted Warbler; and *Motacilla salicaria,* Linn., apud Heuglin et Sharpe, is the Icterine Warbler.

From the evidence to be gleaned upon the subject it would appear that the Garden-Warbler and the Blackcap do not get on very well in the same area. Rarely indeed do the two species occur in any great numbers in the same district; and where the Garden-Warbler is abundant the Blackcap seems always to be rare, and *vice versâ*. The Garden-Warbler is pretty generally distributed throughout England, except in the extreme south-west, but becomes exceedingly local in Wales. It does not appear to have ever been noticed in the Channel Islands. Authorities disagree as to its abundance in Scotland,—Selby, on the one hand, stating that it occurs in all suitable districts throughout the greater part of the country; Gray, on the contrary, being inclined to believe that the bird is not so commonly distributed. It has, however, been met with in most of the midland and southern counties, from Banffshire southwards. Dr. Saxby states that it is a rare autumn visitor to the Shetlands, usually arriving in September; but it does not appear to have been observed in the Orkneys. The bird is rare in Ireland, Thompson only noting its occurrence in the counties of Cork and Tipperary; but it has been met with in the counties of Dublin, Wicklow, and Fermanagh; and Sir Victor Brooke states that it nests regularly near Castle Caldwell, in the north-west of the latter county.

On the continent the geographical distribution of the Garden-Warbler extends throughout Western Europe, and, like that of some other migrants, becomes more and more restricted, both to the north and to the south, as it progresses eastwards. In Norway the bird ranges as far north as lat. 70°, in Finland and North-west Russia to lat. 65°, and in the Ural Mountains to lat. 59°. I cannot find any evidence of its wintering in any part of Europe; and in Southern Italy and Greece it appears to be only found in spring and autumn on migration. Eastwards, in Asia Minor, it has only been recorded as passing through on migration; but in Palestine Canon Tristram says that it remains to breed. It is a summer visitor to the Caucasus and the extreme north-west of Persia. The only evidence of its occurrence east of the Ural Mountains are some examples in the museum of Professor Slovzow at Omsk, said to have been procured in the neighbourhood. It winters in West Africa and in the oases of the Sahara; but in Egypt it is only known to pass through on migration, and has been obtained in our winter in Damara Land, the Transvaal, and the eastern portions of the Cape colony.

The Garden-Warbler is one of the latest of our summer migrants, seldom being observed before the first week in May. It is a shy, active, and restless bird, like most of the Warblers, and frequents the most secluded parts of the districts which it visits. Its haunts are in the dense thickets, amongst the thick undergrowth of plantations and copses, and also in the shady dells near running streams which are almost hidden from view by the mass of overhanging vegetation. As its name implies, the bird is also often seen in large gardens, nurseries, and shrubberies. A few days after its return, when the females have arrived, the male bird may be heard warbling its sweet plaintive song. The song of the Garden-Warbler is not surpassed by that of any other British member of the genus except the Blackcap. It is softer and not so loud as the song of that bird, and wants the richness of tone and the full round notes which make the Blackcap almost rival the Nightingale. The Garden-Warbler may sometimes be observed singing from the topmost twig of a low tree or a bush; but usually its notes are heard from the dense vegetation, where the sombre little musician is hid in the seclusion he loves so well. The song may be heard at frequent intervals until the first brood is hatched; then it ceases for some time, to be again renewed before the second clutch of eggs is laid. Its call-note is a harsh *teck* rapidly repeated and sometimes varied with a few guttural notes. Blyth aptly describes its note as resembling the sound made by knocking two small pebbles together.

The Garden-Warbler, like all its congeners, keeps assiduously out of sight as much as possible, hopping restlessly from branch to branch, and, if alarmed, silently retiring to the deepest shade. It feeds both on insects and on berries and fruits of various kinds; indeed, according to Naumann, the latter is its favourite fare in autumn. It eats the berries of the ivy, the elder, and the blackberry; and in the gardens it consumes the smaller fruits, such as strawberries, cherries, and especially currants. It feeds largely on insects, often pursuing them in the air like a Flycatcher, and incessantly searching for them under and amongst the leaves and twigs. Sweet states that the larvæ of the cabbage-butterfly is a favourite morsel with this bird.

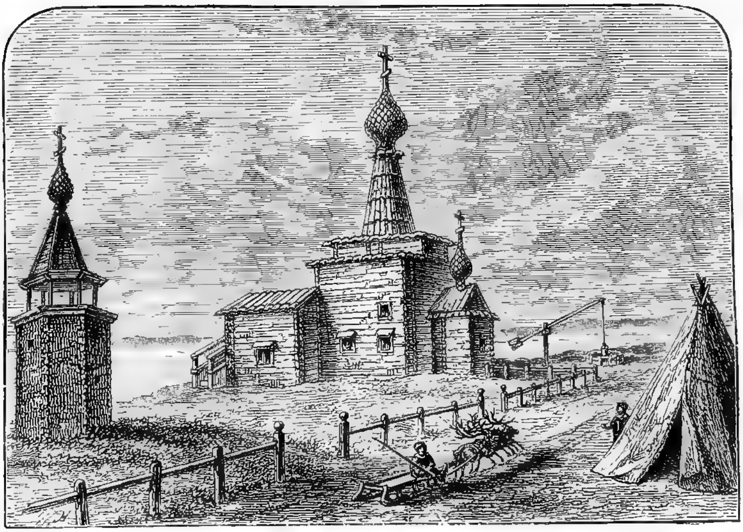
Some little time after their arrival the Garden-Warblers pair, and nesting-duties commence. The site for the nest is usually near the ground and in the quietest and most secluded part of their haunt. The nest is often found under the broad leaves of the brambles, or artfully suspended amidst a network of briars; sometimes it is placed in the low thorn bushes near the ground, almost buried in surrounding herbage, and less frequently in the branches of the gooseberry-bushes. It may also be seen amongst nettles and similar coarse vegetation. The nest is a simple net-like structure made of the withered stems of grasses and a few small roots; sometimes a few cobwebs and a little moss cement the stalks together; and it is lined with a small quantity of horsehair. The surrounding branches are artfully interwoven with the sides of the nest, which, frail as it is, is well and skillfully put together. The eggs are four or five in number, in some cases as many as six. They very closely resemble those of the Blackcap, and vary in ground-colour from pale buffish white to greenish white. In some eggs the markings are distributed in large blotches of greenish brown, varying in richness of colour, and intermingled with smaller and paler underlying spots, with sometimes a few short irregular streaks of dark brown; in others the underlying spots are the predominant ones—large irregular pale violet-grey blotches, sparingly dashed and marbled with brown surface-spots, some of which are very dark in colour; others, again, have the markings chiefly round the large end of the egg—very rich brown spots and irregular streaks intermingled with grey underlying spots. I have never met with the rufous type which occasionally occurs in eggs of the Blackcap and other Warblers as well as the Shrikes &c. They vary in length from ·85 to ·7 inch, and in breadth from ·63 to ·55 inch.

Dixon thus writes of the nest of this bird:—"The Garden-Warbler's nest is usually well concealed under the leaves of the shrubs and plants that sustain it, often so admirably as to completely hide the eggs or sitting bird from view. It is also made on a flimsy net-like design, and is well adapted to escape the notice of all but the most prying observation. The colours of the sitting bird, too, are highly protective; and its unassuming dress is in strict harmony with surrounding objects. When you approach her nest she will eye you anxiously, but will not move, except perhaps to crouch still lower in her nest. Silent and motionless she will allow you to almost touch her with your hand, ere personal safety masters her maternal love, and, like a shadow, she glides into the neighbouring undergrowth."

The Garden-Warbler is said to rear two broods in the year; but I do not think that such is invariably the case; and the late broods of this bird sometimes met with may be those of birds whose earlier efforts were unfortunate. It leaves our shores usually by the latter end of September.

The male Garden-Warbler in spring plumage has the general colour of the upper parts olive-brown, darker and greyer on the wings and tail, and slightly paler on the margin of the wing-coverts and innermost secondaries. The underparts are greyish white, purest on the belly and on the edge of the wing, just below the carpal joint, and shading into pale olive-brown on the breast, flanks, and the centre of the under tail-coverts. The axillaries and under wing-coverts are buff, the latter with darker centres. Bill dark brown, paler at the base of the lower mandible; legs, feet, and claws bluish grey; irides hazel. The female scarcely differs from the male. After the autumn moult the upper parts are more olive and the underparts buffer. Birds of the year scarcely differ from adults in autumn plumage.

In confirmation of the fact that the Garden-Warbler has a spring moult, I may mention that I have in my collection an example from Potchefstroom in the Transvaal, dated January 10th, moulting its wings and tail-feathers, and another, shot on February 20th, from the same locality, in which the wings and tail have been completely renewed and the feathers of the throat and breast are in process of being moulted.



SYLVIA CINEREA*.

WHITETHROAT.

(PLATE 10.)

Ficedula curruca cinerea, *Briss. Orn.* iii. p. 376 (1760).
Motacilla sylvia, *Linn. Syst. Nat.* i. p. 330 (1766).
Ficedula stoparola, *Gerini, Orn. Meth. Dig.* iv. p. 35, pl. cccxcvi. fig. 1 (1773).
? Motacilla rufa, *Bodd. Table Pl. Enl.* p. 35 (1783, *ex Daubenton*).
Sylvia communis, *Lath. Gen. Syn. Suppl.* i. p. 287 (1787).
Sylvia cinerea, var. β, *Lath. Ind. Orn.* ii. p. 515 (1790).
Sylvia cinerea, *Bechst. Orn. Taschenb.* i. p. 170 (1802); **et auctorum plurimorum** —*Temminck, Vieillot, Wolf, Ménétriès, Jenyns, Macgillivray, Keyserling, Blasius, Nordmann, Cabanis, Naumann, Bonaparte, Gray, Schlegel, Selby, Salvadori, Degland, Gerbe, Sundevall, Lindermayer, Loche, Heuglin, Blanford, Fritsch, Shelley, Severtzow, Gould, &c.*
Sylvia cineraria, *Bechst. Naturg. Deutsch.* 2nd ed. ii. p. 534 (1807).
Sylvia cinerea (*Bechst.*), var., *Turton, Brit. Faun.* p. 45 (1807).
Curruca cinerea (*Bechst.*), *Koch, Syst. baier. Zool.* i. p. 157 (1816).
Curruca sylvia (*Linn.*), *Steph. Shaw's Gen. Zool.* xiii. pt. 2, p. 210 (1826).
Ficedula cinerea (*Bechst.*), *Blyth, Rennie's Field Nat.* i. p. 310 (1833).
Curruca cinerea (*Bechst.*), var. persica, *Filippi, Viagg. Pers.* pp. 162, 348 (1865).
Sylvia affinis, *Blyth apud Salvad. Atti R. Accad. Sci. Tor.* iii. p. 291 (1868).
Sylvia rufa (*Bodd.*), *apud Newton, ed. Yarr. Br. B.* i. p. 406 (1873).

The Common Whitethroat is, as its name implies, one of the best-known of the Warblers. It is a common and generally distributed species throughout England and Wales. In Scotland it is one of the most familiar birds, but becomes rarer towards the north. Mr. Gray states that in the western counties it is extremely common. It is also found on several of the Inner Hebrides, as Mull and Iona; and Dixon met with it in all the wooded parts of Skye which he visited; but it is apparently unknown in the Outer Islands. Mr. Gray states that it has occurred in the Orkneys; whilst to the Shetlands, according to Dr. Saxby, it is a straggler in warm summers. In Ireland the bird is as well known and as widely distributed as it is in Great Britain.

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* It is a thousand pities that Professor Newton should have attempted to disturb the name by which the Whitethroat has been universally known for the last eighty years, both by British and continental ornithologists. It is possible that Daubenton's figure of "La Fauvette rousse" (Pl. Enl. no. 581. fig. 1) may be an exaggerated figure of a young male in first plumage of the Whitethroat; but there can be no doubt that Boddaert would have been greatly surprised to learn that his name of *Motacilla rufa* was applied to the Whitethroat, which was figured in the same work, no. 579. fig. 3, under the name of "La Grisette," and which he correctly identified with the *Motacilla sylvia* of Linnæus. Boddaert's unambitious object was to supply the Latin names of the birds figured in the

On the continent the Whitethroat is an extremely common bird, breeding throughout Europe, in Scandinavia and West Russia, as far north as lat. 65°, and in the Ural Mountains as far as lat. 60°. Eastwards it is found in Asia Minor, Palestine, Persia, Turkestan, and South-west Siberia. Its breeding-range extends further to the south than that of any other common British Warbler. In Asia Minor I found it one of the few common British birds which were as abundant amongst the olives and the vines during the nesting-season as they are in this country. Canon Tristram says that a few remain during the winter in Palestine. Prof. Newton states that it winters in some of the southern portions of Europe and in several of the islands of the Mediterranean; but I have been unable to find any evidence that this is the case. Irby never observed it near Gibraltar in winter; and Krüper says that in August and September it disappears entirely from Greece and Asia Minor. It certainly winters in North-west Africa, and is described as passing through North-east Africa on migration. In the British Museum are examples collected by Sir A. Smith in South Africa, and one obtained by C. J. Andersson in Damara Land in January. It has not been recorded from Madeira or the Azores; but it has been obtained in the Canaries. In the Altai and Tianshan Mountains it is represented by a form which appears to be subspecifically distinct, examples from these localities being darker, greyer, and larger than our bird, measuring more than 3 inches in length of wing, and laying considerably larger eggs. Hume records an example, probably of this form, from North-west India. I am unable to find any published description of the eastern form of the Whitethroat, of which I have several specimens in my collection; but it may be called *Sylvia fuscipilea,* inasmuch as Severtzow includes it in a list of the birds of the Tianshan Mountains in the 'Journal für Ornithologie' (1875, p. 177), under the name of *Sylvia cinerea β. fuscipilea.* The next nearest ally to the Common Whitethroat is undoubtedly the Lesser Whitethroat, especially the large variety to which Hume gave the name of *Sylvia althea.*

This pretty and familiar little Warbler, although it is so very common, is by no means one of the earliest migrants to reach our shores in spring, and usually arrives in England in the latter end of April, sometimes not

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'Planches Enluminées,' which Buffon and Montbeillard had neglected to do. Referring to the work of the former gentleman, he finds that the "Fauvette rousse" is the *Curruca rufa* of Brisson; and turning over his 'Systema Naturæ,' he finds that all the Fauvettes are included by Linnæus in his genus *Motacilla*: so he modestly names "La Fauvette rousse" of Daubenton *Motacilla rufa*, instead of *Curruca rufa*. This is a glaring instance of the mischief caused by the Stricklandian code. According to the rules which have received the sanction of the British Association, the correct name of the Whitethroat is *Curruca sylvia*. It must always be borne in mind that no argument, however plausible, can make the British Association responsible for the name of *Sylvia rufa* for the Whitethroat.

until the beginning of May. As might be expected, it arrives a little later in Scotland, not being usually seen there until early in May. It will also be observed that the males come a little before the females. The Common Whitethroat is a bird of the thickets, and loves those places where vegetation is intergrown and tangled. You may often hear its harsh call-notes from the thickly matted hedgerows, or catch a hurried glimpse of it in the garden and the shrubbery. It is also one of the commonest birds on waste pieces of land over which there is a luxuriant growth of shrub, briar, bramble, and nettle; whilst even on the moorlands it is often seen gliding restlessly about the stunted thorn-bushes. The Whitethroat is a bird of the lanes, and is not found so often in thick woods and plantations; nor does it perhaps so commonly mount into the high branches of the trees as the Blackcap, but prefers the lower shrubs and bushes.

The Whitethroat is a restless little bird, incessantly hopping from twig to twig—sometimes hiding from view, at others poised on a topmost spray. Athough by no means a shy bird, still it is one that likes to keep out of sight to a great extent; and very often the trembling of a twig and the harsh call-note are the only signs of its presence as it rapidly threads its way up the hedgerow buried in the green foliage. But it is also sometimes seen in the tallest trees, especially those standing in hedges, into which it will drop down if alarmed. In the tall branches its actions are just the same as near the ground. It hops quickly from branch to branch, is rarely still a moment, and very often flutters into the air to catch passing insects. Soon after his arrival the male bird may be heard to sing. It will be noticed that most birds, even if they be usually shy and wary, are much more tame when warbling forth their songs than at any other time. The Whitethroat is no exception, and when in the act of singing is perhaps one of the boldest and most trustful of our Warblers. He will often perch on a tall twig and warble out his song within a few yards of where you are standing, the feathers on his head erected, and his throat swollen and quivering with the exertion. He is so full of music in the early summer, that sometimes as he flies from hedge to hedge he will soar up into the air above his line of flight and pour out his song like a Pipit or a Lark. I have watched the Whitethroat start from a bush and make an excursion into the air for at least fifty yards, singing all the time, every now and then checking himself with a peculiar jerk of his partly expanded tail, and finally returning to his old perching-place. The song, although short, is in parts very sweet; but as the notes are so often repeated, it is apt to become monotonous. The Whitethroat may be heard long before dawn; and sometimes it sings late in the evening. Its alarm-note is almost exactly represented by the sound of *chzh*, when sounded low resembling *chsh*. The bird also appears to have two notes besides its song and alarm-note. The most frequently heard of these resembles the sound of *hweet-hweet-hweet* very vigorously repeated, and is generally uttered when the male and female are chasing and toying with each other in some low bush or underwood. The other is a *cha-cha-cha,* very similar to the chirp of a Sparrow.

Like the Goldcrest and the Wren, the Whitethroat when pursued hides itself in the cover, and if chased will always contrive to keep on the side of the hedge furthest away. You may follow it backwards and forwards, but rarely will it be induced to leave the cover, and its harsh notes are the only sign of its presence.

By the beginning of May the Whitethroats are in pairs; and soon after this date their flimsy net-like abode may be found. The nest is placed at different elevations from the ground. Sometimes it is found amongst the brambles creeping in wild confusion over a waste bit of ground; at others it is seen in the dense whitethorn or hazel-hedges, in the tangled grass growing round stumpy bushes and shrubs, amongst nettles and other coarse vegetation, and has been known to be built in the heaps of hedge-clippings left in little-frequented corners of gardens and orchards. The nest is made of fine dry grass-stems, and is lined with a few fibrous rootlets and a quantity of horsehair. Although so slight and loosely put together, the Whitethroat's nest is a very pretty one, and may generally be distinguished from the nests of allied birds by its greater depth. The eggs of the Whitethroat are from four to six in number. Some specimens are buffish white, with most of the spots underlying and violet-grey in colour; others are pale bluish white, mottled, blotched, and speckled with yellowish brown, and with large underlying spots of violet-grey; whilst others are pale green, sparingly marked with olive-green. Some specimens of Whitethroat's eggs are much more richly marked than others. I possess one which has the larger end boldly marked with large brown spots. In some eggs the spots are evenly distributed; in others they form a zone round the larger half of the egg; and in others they are all confluent on the large end, forming a round mass of colour. They measure from ·8 to ·65 inch in length, and from ·6 to ·5 inch in breadth. Certain eggs of the Whitethroat closely resemble the eggs of the Dartford Warbler; but, as a rule, the eggs of the latter species are never so green. From the eggs of the Lesser Whitethroat those of the Common Whitethroat may be distinguished by never having the ground-colour so pure and the markings so rich a brown or so clearly defined.

The food of the Common Whitethroat during the first month or so of its sojourn here consists almost exclusively of insects; and on this food its young are reared, especially on the fly popularly known as "daddy longlegs," and which often swarms to an alarming extent in dry summers. In the fruit-time, however, the Whitethroat visits the gardens for currants and raspberries; and in the woods it will eat the various wild fruits and the softer berries. The Whitethroat may be very often flushed from the corn-fields early in August, where it feeds on the insects found on the grain; and Dixon states that he has shot them in the act of eating the soft milky corn. He also says that the bird sometimes clings to the trunks of trees like a Creeper.

In the moulting-season, which begins in July and lasts until the end of August, the Whitethroat becomes a very shy and retiring bird, and is also much less garrulous, so much so as to lead to the supposition that the birds have departed. The Whitethroat leaves its northern haunts during the latter end of September or the first week in October; but it has been met with as late as the end of the latter month. It is exceedingly probable that these birds perform their migrations in the night; for they may be seen quite common one day, and their favourite haunts may be found deserted the next.

The adult male Whitethroat in spring plumage has the general colour of the upper parts greyish brown, darkest on the wings and tail, and shading into ash-grey on the head and upper tail-coverts; the wing-coverts and innermost secondaries are broadly edged with pale chestnut; and the outside tail-feathers are paler than the rest, and broadly edged with white. The underparts are white, purest on the throat and belly, with a vinous tinge on the breast, and shading into buff on the flanks. The axillaries and under wing-coverts are pale grey, the latter frequently with darker centres. Bill dark brown, the lower mandible paler; legs, feet, and claws pale brown; irides light hazel. The female has the greyish brown of the back extending to the head and upper tail-coverts; and the vinous tinge on the breast is absent. After the autumn moult the male assumes the colour of the female. Birds of the year have the colour of the upper parts still less grey, almost dull chestnut-brown.

I am indebted to Mr. Baker, of Sheffield, for a very curious example of this bird with a small but very distinct claw on the shoulder. A monstrosity of a similar kind has occurred in the Blackbird, and was described by Bonaparte as a new species under the name of *Merula dactyloptera*. A similar claw is normally developed on the shoulders of some birds—for example the Spur-winged Plover (*Charadrius spinosus*), and many of the Jacanas (*Parrinæ*).

SYLVIA CURRUCA.

LESSER WHITETHROAT.

(Plate 10.)

Ficedula curruca garrula, *Briss. Orn.* iii. p. 384 (1760).
Motacilla curruca, *Linn. Syst. Nat.* i. p. 329 (1766); **et auctorum plurimorum**—(*Latham*), (*Bechstein*), (*Temminck*), (*Naumann*), (*Bonaparte*), (*Schlegel*), (*Gray*), (*Newton*), (*Dresser*), *&c.*
? Motacilla dumetorum, *Linn. Syst. Nat.* i. p. 334 (1766).
Sylvia curruca (*Linn.*), *Scop. Ann. I. Hist. Nat.* p. 155 (1769).
Sylvia sylviella, *Lath. Gen. Syn. Suppl.* i. p. 287 (1787).
? Sylvia dumetorum (*Linn.*), *Lath. Ind. Orn.* ii. p. 522 (1790).
Motacilla sylviella (*Lath.*), *Turton, Linn. Gen. Syst. Nat.* i. p. 588 (1806).
Silvia garrula, *Bechst. Naturg. Deutschl.* 2nd ed. ii. p. 540 (1807).
Curruca garrula (*Bechst.*), *Koch, Syst. baier. Zool.* i. p. 157 (1816).
Curruca sylviella (*Lath.*), *Fleming, Brit. An.* p. 71 (1828).
Curruca dumetorum (*Linn.*), *Brehm, Vög. Deutschl.* p. 422 (1831).
Curruca molaria, *Brehm, Vög. Deutschl.* p. 422 (1831).
Ficedula garrula (*Bechst.*), *Blyth, Rennie's Field Nat.* i. p. 352 (1833).

The Lesser Whitethroat was first made known to British ornithologists by Latham, from specimens obtained near Bulstrode, in Buckinghamshire, by the Rev. Mr. Lightfoot, who sent them to that ornithologist, who described them in the Supplement to his 'General Synopsis,' and gave a figure of the bird, its nest and eggs (i. p. 185, pl. cxiii.). It is probable, however, that the bird had already been noticed in this country by Gilbert White, who accurately describes it in a letter to his friend Mr. Barrington. Among continental ornithologists this bird appears to have been known to Linnæus, Brisson, Buffon, and Scopoli. In this country the bird is a somewhat local one, and becomes very rare in the west of England and in Wales. Montagu states that in Lincolnshire, in his time, the bird was more abundant than in any other part of England; but now it appears to be only local there. In the Channel Islands it is only found in Guernsey, and is by no means numerous. In Scotland the Lesser Whitethroat is also very local in its distribution. According to Gray it is sparingly met with in parts of Ayrshire, Renfrewshire, and Dumbarton, and occurs as far north as the middle of Argyleshire. It is equally local on the east coast. Three or four specimens have been observed on the Shetlands; but the bird appears to be absent from the rest of the Scotch islands, never having been met with in the Hebrides. In Ireland, although its congener the Common Whitethroat is so widely distributed, there is no reliable evidence of the occurrence of the present species.

The Lesser Whitethroat has the most extensive range of any member of this genus, breeding in the Palæarctic region, from the Atlantic to the Pacific. In such a large range it is not to be wondered at that the bird is subject to considerable variation. This is an excellent example of a species breaking up into four species. Typical examples of each present excellent characters, and have fairly well-defined geographical limits. Unfortunately, however, for the student who is anxious to define his species with greater accuracy than Nature has hitherto succeeded in accomplishing the task, intermediate forms occur, and individuals do not always recognize their geographical limits as well-behaved species ought to do. As Hume very justly observes, this is a case in which some ornithologists will treat the birds as four species, whilst others will only consider them four races of one somewhat variable species. I prefer to treat them as subspecies, adopting the provisional hypothesis that the intermediate forms are the result of the interbreeding of the several races where their geographical ranges meet.

The European or typical form of the Lesser Whitethroat breeds throughout Europe, Asia Minor, and Palestine, extending northwards somewhat beyond the arctic circle, but not quite to the limit of forest-growth. In South Europe it is principally known as a summer visitor; but Mr. Howard Saunders states that it remains during the winter in South Spain. It certainly winters in the southern portions of North Africa, in the oases of the desert, Nubia and Abyssinia, &c.

In the valley of the Lower Volga, North Persia, Turkestan, the whole of Siberia up to lat. 67°, and North-east China, the Siberian form of the Lesser Whitethroat, *S. cinerea*, var. *affinis*, occurs in summer, wintering in Baluchistan, the whole of India, and Ceylon. This form only differs from the typical species in having the second primary intermediate in length between the sixth and seventh, in rare instances between the seventh and eighth (in the European species the second primary is intermediate in length between the fifth and sixth). It also differs very materially in its song, apparently having forgotten or never learnt the trill which its European ally constantly introduces.

In the Himalayas the Lesser Whitethroat differs from the European form in having the upper parts an almost uniform bluish grey, the back being scarcely suffused with brown at all. In its wing-formula it agrees with the Siberian form, but is, on an average, larger than either of the two forms hitherto mentioned, the length of wing varying from 2·8 to 2·55 inch instead of from 2·65 to 2·45. Hume named this form *S. althea*. It breeds abundantly in the extreme north-west of Cashmere, and winters in the North-west Provinces of India.

The fourth form of the Lesser Whitethroat, to which Hume gave the name of *S. minuscula*, is a small desert race differing from its near allies in having the forehead and crown of a pale bluish grey colour, gradually shading into the colour of the back, which is a pale isabelline brown. The length of wing varies from 2·45 to 2·3 inch. In its wing-formula it agrees with the Siberian form. It breeds in the Ferghana and Afghanistan, passes through the Pamir on migration, and winters in Baluchistan, Scinde, and North-west India.

The Lesser Whitethroat is a regular summer migrant to this country, and arrives during the last half of April, sometimes not until the beginning of May. Like its near congener the Common Whitethroat, it is a restless shy little bird, and only frequents those localities which afford it plenty of seclusion and concealment. Its haunts are the tangled hedgerows, in lanes, especially if there be plenty of tall shrubs and trees; it is also an inhabitant of the thick shrubberies, where the evergreens are interspersed with deciduous trees; and gardens, small plantations, and copses are also tenanted.

Unlike the Common Whitethroat, this species is very frequently seen at a considerable distance from the ground, in the higher branches, a difference of habit which may also be remarked between the Chiffchaff and the Willow-Wren.

From this peculiarity in its habits, and from the luxuriance of the foliage which it frequents, the Lesser Whitethroat very often escapes observation; but when noticed it will be seen to display the same restless disposition as the other Warblers, gliding quickly from branch to branch, now hiding under the broad leaves, then hovering in the air to catch a fly, or more often to warble its song. Although it does not often prolong its flight far into the open, still when so seen it may be observed that its course is an undulating one. Its song is a monotonous trill, sometimes like the first half of the song of the Yellowhammer; but it is frequently preceded by a few notes which, though they are not very varied nor very loud, are by no means unmusical, something like the twittering of a Swallow. Its call-note resembles the syllable *check* several times repeated and sometimes varied with a more guttural cry.

The food of the Lesser Whitethroat is largely composed of insects, which it seeks under the leaves and amongst the twigs, and occasionally attempts to secure on the wing, snapping at them from its perch or pursuing them in the air. It is also fond of small caterpillars and aphides, and, like all its congeners, feeds largely on fruit, especially on cherries and red currants.

The Lesser Whitethroat is a somewhat late breeder, and the vegetation is usually dense and luxuriant ere its nest is commenced. It is often placed amongst brambles, in furze bushes, in thickets, the topmost branches of a tall hedgerow, or in the bushes which grow over the stream in some shaded dell. It is much shallower than the nest of the Common Whitethroat, and is often made of coarser materials. It is usually made of fine dry grass-stalks, amongst which the twigs that support it are artfully interwoven. It is generally bound together with spider's webs or the cocoons of caterpillars, and lined with a few fibrous rootlets and sometimes a little horsehair. The bird is very easily driven from its uncompleted nest, and, if frequently disturbed, will soon forsake it. The eggs of the Lesser Whitethroat are four or five in number, and present in their variations two very distinct types. The first type, and perhaps the commonest, is pure white or pale creamy white in ground-colour, spotted and blotched with rich greenish brown, and with underlying shell-markings of violet-grey. The second type has the ground pale buff or stone-colour, and the markings are not so bold and deep in colour. The markings are confined for the most part to the large end of the egg, often forming a zone, sometimes an irregular circular patch. Many of the eggs are streaked with very deep brown; and usually most of the large spots are paler round the edge than in the centre; and on all eggs the large spots are intermingled with finer markings of pale yellowish brown. They measure from ·78 to ·6 inch in length, and from ·55 to ·5 inch in breadth.

The bird is a very close sitter. When the nest is approached the female remains silent and motionless on her eggs until almost touched by the hand. The male bird also generally soon appears upon the scene, and, in company with his mate, hops anxiously from twig to twig, both uttering their harsh and monotonous notes. The more frequently the nest is visited the more wary the birds become; and Naumann states that when the bird is frightened off the nest it flutters about in the open to attract attention. The Lesser Whitethroat leaves this country for the south during the last half of September; specimens have been obtained as late as the middle of October; and in the month of November last year an example was caught at Brighton by Mr. Swaysland.

In spring plumage the male Lesser Whitethroat has the general colour of the upper parts pale slate-grey, more or less suffused with brown on the back, lores, and ear-coverts. The eye-stripe is almost obsolete. The innermost secondaries have paler edges; the wings and tail are brown, the latter broadly tipped with white on the outside feathers. The underparts are white on the chin, throat, the centre of the belly, and the under tail-coverts, shading into very pale brown on the breast and flanks. The axillaries and under wing-coverts are white. Bill dark bluish grey, the under mandible pale at the base; legs, feet, and claws bluish grey; irides light brown. The female scarcely differs from the male, but has not even the rudiments of an eye-stripe. After the autumn moult the breast and flanks are somewhat more suffused with brown. Birds of the year have the upper parts still more suffused with brown, and the pale brown of the underparts extends to the under tail-coverts. The bill and legs are also somewhat paler.

SYLVIA PROVINCIALIS*.

DARTFORD WARBLER.

(PLATE 10.)

Motacilla undata, *Bodd. Table Pl. Enl.* p. 40 (1783).
Sylvia dartfordiensis, *Lath. Gen. Syn. Suppl.* i. p. 287 (1787).
Motacilla provincialis, *Gmel. Syst. Nat.* i. p. 958 (1788); **et auctorum plurimorum**—(*Temminck*), (*Meyer*), (*Montagu*), (*Crespon*), (*Keyserling*), (*Blasius*), (*Lindermayer*), (*Dubois*), (*Heuglin*), (*Boie*), (*Fleming*), (*Kaup*), (*Selby*), (*Jenyns*), (*Gould*), (*Bonaparte*), (*Cabanis*), (*Degland*), (*Gerbe*), (*Loche*), (*Doderlein*), (*Salvadori*), (*Shelley*), (*Fritsch*), *&c.*
Melizophilus dartfordiensis (*Lath.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 25 (1816).
Sylvia ferruginea, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 209 (1817).
Sylvia provincialis (*Gmel.*), *Temm. Man. d'Orn.* i. p. 211 (1820).
Curruca provincialis (*Gmel.*), *Boie, Isis*, 1822, p. 553.
Thamnodus provincialis (*Gmel.*), *Kaup, Naturl. Syst.* p. 109 (1829).
Melizophilus provincialis (*Gmel.*), *Selby, Brit. Orn.* i. p. 219 (1833).
Ficedula ulicicola, *Blyth, Rennie's Field Nat.* i. p. 310 (1833).
Malurus provincialis (*Gmel.*), *Selby, Cat. Gen. B.* p. 10 (1840).
Sylvia undata (*Bodd.*), *Gray, Gen. B.* i. p. 174 (1848).
Pyrophthalma provincialis (*Gmel.*), *Jaub. et Barth.-Lapomm. Rich. Orn.* p. 249 (1859).
Melizophilus undatus (*Bodd.*), *Newt. ed. Yarr. Br. B.* i. p. 398 (1873).

The Dartford Warbler possesses a special interest for British ornithologists from the fact that it was first discovered in our islands, though it is possible that fig. 2 on plate ccclxxxxi. of Gerini's 'Ornithologia Methodice Digesta' may have been intended to represent this species. In the spring of 1773 a pair were shot on Bexley Heath, near Dartford, and sent to Latham, who communicated the discovery to Pennant, by whom the new bird was described and figured in 1776, in his 'British Zoology,' under the name of Dartford Warbler. Two years later Buffon published a description of this bird, illustrated by a figure by Daubenton, under the name of Le Pitchou, from an example which had been sent to him from Marseilles. When Latham wrote his 'Index Ornithologicus,' he had already discovered the identity of the Marseilles bird with his Dartford Warbler.

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* According to the Stricklandian code—that is to say, according to *law*—Boddaert's name should be adopted for the Dartford Warbler, as he was undoubtedly the first person to publish a Latin name for this bird, though it is probable that he never saw it. According to *equity* there can be no doubt that Latham's name should have the preference, as he appears to have been the first discoverer of this species. But according to *custom* there can be no question that Gmelin's name has received the sanction of *auctorum plurimorum*; although there is every reason to believe that Gmelin was little more than a book-maker, who compiled his works from the writings of others. The Stricklandian code was published in 1842; and six years afterwards Gray adopted Boddaert's name for this bird in obedience to its rules. Since 1848 the only writers of importance who have followed Gray have been Harting, Newton, Dresser, and Irby.

The geographical distribution of this little Warbler is a somewhat remarkable one. It is not known to be anywhere a migratory bird*. Its headquarters appear to be the basin of the Mediterranean, where it occurs in Spain, the extreme south of France, Corsica, Sardinia, Italy, and Sicily. It has been recorded from Greece and Asia Minor; but no recent ornithologists have met with it in those countries. Canon Tristram obtained it in Palestine; and Heuglin found it near Alexandria. It is a resident in Morocco and Algeria. On the shores of the Atlantic the mild winters produced by the Gulf-stream have enabled it to push much further north, and it is found in Portugal and the extreme west of France. In England it is principally confined to the counties bordering the Channel, but also occurs in the counties of Surrey, Oxford, Worcester, Leicester, and Derby, and has been found as far north as South Yorkshire, where Dixon obtained its nest in the neighbourhood of Sheffield. Its numbers would probably increase, and its range continue to extend further north, were it not that in some years a sudden and heavy fall of snow, or an unusually long-continued frost, almost exterminates it in some localities.

In summer the Dartford Warbler lives almost entirely in the furze bushes; hence its local name of Furze-Wren. In winter, though it may often be seen in its summer haunts, the necessity of procuring food prompts it to visit the turnip-fields, or to range along the coast. Its long tail and short rounded wings do not seem adapted to extensive flights; but it has nevertheless been twice seen on Heligoland. It is seldom seen on the wing. At Biarritz I found them frequenting the reeds on the banks of a small lake. The first sight I had of one was that of a little dark bird with a fan-like tail suddenly appearing amongst the reeds, crossing a small patch where they had been cut down, and as suddenly and silently disappearing amongst the reeds on the opposite side. Occasionally, as we walked on the bank of the lake, we heard a loud, clear, melodious *pitch'-oo* repeated once or twice amongst the reeds. The note was so musical that for a moment one might imagine that a Nightingale was beginning to strike up a tune. Now and then we saw the bird appear for a moment above the reeds, as if thrown up by a battledore; but it dropped down again and disappeared as suddenly. I have very rarely seen so skulking a bird; once only it flew up from the reeds, and perched in a willow near a large patch of furze bushes. Like most other Warblers, this bird is very active, scarcely resting for a moment, except when warbling its hurried little song from the top of a furze-branch. In many of its habits it reminds one of Cetti's Warbler. It flits up a furze bush, dodging in and out amongst the side branches in search of insects, perches for a moment on the topmost spray; but before you have had time to get your binocular onto it it has caught sight of your movement and drops down into the furze bush as if shot.

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* The statement in Dresser's 'Birds of Europe,' that "Heuglin says that it is very rare in Lower Egypt, where it appears with the Subalpine Warbler and Rüppell's Warbler between the 20th and 25th March," is incorrect. Heuglin says that he saw it between those dates, in the company of the birds named; but there is not a word said to suggest that it is migratory, or that the dates given are the times of its arrival.

So far as is known, the Dartford Warbler is almost entirely insectivorous. Mr. Booth (Zool. 1877, p. 59) remarks that it "generally feeds its young on the body of a large yellow moth. I have observed several pairs carrying a light substance in their mouths to the nest; and on shooting one bird from each of two nests I discovered that the food was the same in both cases. The wings of the moth were removed, and I was not entomologist enough to name the species; but I observed that the birds hunted for their prey among the lower part of the stems of the furze." It can scarcely be doubted that this bird will also eat fruit in autumn. It would seem that it rears two broods in the year, the first clutches of eggs being laid in the last half of April and the second in the last half of June. The nest is described as generally concealed in the thickest furze, amongst the dead branches, not many feet from the ground; but near Gibraltar it is said to nest in the heather. It is a very slender structure, built principally of the finest round grass-stalks and slender stems of various plants, a good deal of moss being used in the foundation, and small bits of wool being introduced into the lining. The nest is very small and deep; and though the sides are thick, the materials are so loosely put together that when held up to the light it is possible to see through them. Four or five is the usual number of eggs. In colour they much resemble those of the Whitethroat. The ground is white, sometimes of a greenish and sometimes of a buffish shade. The spots are darker and more numerous than those of typical eggs of the Whitethroat, and are dark brown, largest and most numerous towards the large end of the egg. The underlying spots are, of course, paler, but in closely spotted eggs are not conspicuous. In size the eggs vary from ·7 to ·65 inch in length by ·53 to ·5 in breadth.

In the adult male Dartford Warbler the general colour of the upper parts is very dark sooty brown, shading into very dark slate-grey on the head. The innermost secondaries, wing-coverts, and quills are dark brown, edged externally with pale brown. The tail is very dark grey, with the outside web and the tip of the outside feathers white. The underparts are chestnut-brown, shading into white on the centre of the belly; and the feathers of the chin and upper throat are tipped with white. The under tail-coverts are grey, with whitish tips. Bill very dark brown, paler at the base of the lower mandible; legs, feet, and claws pale brown; irides orange-yellow. The female differs from the male in having the general colour of the underparts pale cinnamon-brown, instead of rich chestnut-brown. The autumnal moult causes but little change in the colour of the plumage. Birds of the year are slightly paler and browner above, and have the underparts considerably paler than those of the adult female.

SYLVIA GALACTODES.

RUFOUS WARBLER.

(PLATE 10.)

Turdus arundinaceus, *Linn.*, var. β, *Lath. Ind. Orn.* i. p. 334 (1790).
Sylvia galactotes, *Temm. Man. d'Orn.* i. p. 182 (1820); **et auctorum plurimorum** —(*Gray*), (*Bonaparte*), (*Heuglin*), (*Degland & Gerbe*), (*Gould*), (*Newton*), (*Dresser*), *&c.*
Turdus rubiginosus, *Meyer, Taschenb. Zus. u. Ber.* p. 66 (1822).
Aedon galactodes (*Temm.*), *Boie, Isis*, 1826, p. 972.
Sylvia rubiginosa, *Temm. Man. d'Orn.* iii. p. 129 (1835).
Agrobates galactotes (*Temm.*), *Swains. Classif. B.* ii. p. 241 (1837).
Salicaria galactotes (*Temm.*), *Gould, B. Eur.* ii. pl. 112 (1837).
Erythropygia galactodes (*Temm.*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 13 (1838).
Aedon rubiginosa (*Temm.*), *Degl. Orn. Eur.* i. p. 567 (1849).
Calamoherpe galactodes (*Temm.*), *Schl. Vög. Nederl.* p. 141 (1854).
Agrobates rubiginosus (*Temm.*), *Dubois, Ois. Eur.* pl. 74 (1862).

The Rufous Warbler can only be considered a very accidental straggler to the British Islands. The first specimen was shot by Swaysland, the well-known bird-stuffer of Brighton, in the autumn of 1854, and recorded in the 'Zoologist' for that year (p. 4511) by Mr. Borrer. This gentleman writes that as Swaysland "was driving on the South Downs about six miles from Brighton, near a part of the Downs known as Plumpton Bosthill, he noticed a bird which he at first took for a cream-coloured variety of the Nightingale. Having no gun, he proceeded about four miles to obtain one, and, returning to the spot, found the bird about twenty yards from where he first observed it. It was very wary, flying always to the further side of some furze bushes, and settling on the side furthest from him, mounting into the air some fifteen yards. Swaysland describes its flight as resembling that of the young of the Red-backed Shrike. He at last got a shot at about forty yards, and killed it: this was on the 16th of September last. The bird, on dissection, proved to be a male, and would shortly have moulted, one or two young feathers of the primaries having made their appearance on each wing: these are darker than the old ones. The feathers also on the back and tail, especially the central ones of the latter, are much worn." In 1859 the late Mr. G. R. Gray writes, in the 'Annals and Magazine of Natural History' (iv. p. 399), of the second specimen, stating that it had "been killed near Start Point, South Devonshire, on the 25th of September last. It was shot by William D. Llewellyn, Esq., by whom it was presented to the British Museum. That gentleman observed that its flight much resembled that of a Lark, and that it was exceedingly thin. Its visit was probably occasioned by the strong southerly wind which had prevailed for several days."

To the above occurrences must be added a third example, shot in a turnip-field near Slapton in Devonshire, on the 12th of October 1876. It was recorded in the 'Zoologist' for that year (p. 5179) by Mr. Henry Nicholls, who states that it appears to be a bird of the year, and, curiously enough, was taken within a short distance of the specimen obtained in the year 1859.

The Rufous Warbler has a very restricted geographical distribution, its range being confined to the basin of the Mediterranean and eastwards into Turkestan. Even in this small area it is subject to considerable variation, the eastern form being much greyer on the whole of the upper parts, especially on the central tail-feathers, than the western form, and the Abyssinian form being smaller than either. The typical form appears to be the one that has occurred in our islands, and is a common summer visitor to Portugal, Spain, Algeria, Egypt, and Palestine south of Beyrout. It is known to winter in Abyssinia, and has been said to have been procured at that season of the year on the Gold Coast.

The small form is said to be a resident in Abyssinia, and is generally known as *S. galactodes*, var. *minor*. The grey-backed form *S. galactodes*, var. *familiaris*, breeds in Greece, Asia Minor, Palestine north of Beyrout, the Caucasus, Persia, and Turkestan. It winters in Scinde, Baluchistan, and Rajpootana. This form has occurred accidentally on Heligoland; and in the museum at Florence are several examples from Nice and Genoa.

As might be expected of a bird which only accidentally wanders north of the basin of the Mediterranean, the Rufous Warbler is a migratory species which arrives very late at its breeding-quarters, and leaves early for the south in autumn. In Greece and Asia Minor I found it a very common bird, and shot several examples as they sat in the lowest branches of the olive-trees in the vineyards. Even in these southern latitudes it is a bird of the plains, and was to be found in company with Cetti's Warbler, Bee-eaters, and the Isabelline Chat, but was never observed in the pine-region, where the Wood-Lark, the Chaffinch, and the Wheatear were breeding. It did not arrive until the last week in April, five weeks after the Swallows. Although in some respects this bird resembles the Reed-Warblers, his song is quite different, and reminded me very much of that of the Robin. The bird is very active, and is often seen perched in a somewhat conspicuous position, moving his tail up and down like a Wagtail. In flying it often spreads its tail, showing very conspicuously the contrast of the black and white on the outside feathers. We had several nests brought us early in June, and remarked that in most of them was a piece of the cast skin of a snake. The Greeks told us that this bird always weaves a small portion into the lining of the nest, to act as a charm to prevent the snakes from sucking the eggs. The nest is usually placed not very far from the ground, in the rough hedges which surround the vineyards and cherry-orchards. The nest is larger than that of most Warblers, somewhat more bulky, and scarcely so deep. It is composed of roots, straws, dry grass, bits of matting, lichen, &c., and is lined with wool, thistledown, a feather or two, or almost any soft material.

Writing of this species in Palestine, Canon Tristram states that it returns to its old haunts by the middle of April, and spreads itself over every part of the country where there are bushes and reeds. He writes (Ibis, 1867, p. 80) :—"In no way whatever does it resemble the Marsh-Warblers in action or note. Its song is low, soft, and mellifluous. It is constantly seen, and, instead of skulking in thickets, hops here and there, perching on the outmost bough of any bush or on the stem of a tall cane, expanding and jerking its tail like a Wren." He also informs us that its nest is very easy to find, the bird making no more attempt to conceal it than the Missel-thrush. In his last journey to Palestine Canon Tristram met with this bird in great abundance: and his observations are specially interesting; for they relate to a great extent to the geographical distribution of the eastern and the western forms of this Warbler. In 'The Ibis' for 1882 (p. 409) he informs us that "after the last week in April it is to be seen everywhere, on upland and lowland alike, expanding, jerking, and fanning its tail, with its conspicuous white bar, on the bare fig-trees, among olives, on the top of any little shrub, or on the pathway in front of the horseman, hopping fearlessly on at his close approach. No specimen of its ally (*S. familiaris*) have I ever noticed among the thousands I have seen, though I was keenly on the look-out for it. But when, after leaving Beyrout, I followed the coast-line northwards, so soon as we had passed the headlands of Lebanon and entered the rich plains of Tripolis, not a solitary *S. galactodes* was ever seen, while *S. familiaris* was as abundant everywhere as its congener had been in the south. . . . North and east we have the one species; south and west, as far as Algeria, Spain, and Morocco, we find the other."

Dixon, when in Algeria, made the following notes respecting the habits of this bird :—"Although the Rufous Warbler was a bird of which I was particularly anxious to make the acquaintance; for I was curious to know whether it was the present species or the nearly allied *Sylvia familiaris* of the East that occurred in Algeria, it was not until we reached the oasis of Biskra that I met with it. Biskra is the second oasis, and is situated on the borders of the Great Desert—a charming place, almost all date-palm forests and barley-fields. I sought eagerly for my then to me unknown bird in the few places I thought best adapted to a Warbler's requirements—in the fast drying-up bed of the Oued Biskra, in the tangled mass of tall cane-brake and thorns by the side of the artificial canals made for purposes of irrigation—but in vain. The delicate little Tree-Warbler

Hypolais opaca and the Wren-like Cisticola were to be seen, but no Rufous Warblers. The date-palms are chiefly enclosed in mud walls at this oasis; and the ground between the trees is sown with barley: these are the Arab gardens; and in them we first met with the bird. As we wandered between the narrow lanes, a strange bird would now and then be seen on the tops of these mud walls, in amongst the thorns placed on the top to keep them from falling, spreading its fan-like tail for a moment, and then disappearing again. It was always very shy and wary, and defied all our efforts to shoot it. We also met with it in the large Government garden here, now left neglected and all run wild—a perfect paradise for birds, where the palm-trees glistened with the refulgent dress of the Bee-eater and the gaudy Golden Oriole. Amongst the bushes it was just as shy and wary as ever: all we got was a hasty glimpse of its rich chestnut plumage, and the conspicuous markings of its tail as, like a fan, it was wafted to and fro just as the bird was about to take wing. We did not succeed in obtaining a single specimen in Biskra; but when we reached the picturesque oasis of El Kantara, on our return journey, I was fortunate enough to shoot a pair. Here, as at Biskra, we repeatedly saw them on the walls of the Arab gardens. I was walking along the high road, trying to get a few specimens of the trustful and pretty Sahara Bunting, when, in a small prickly-pear garden, I noticed a pair of Rufous Warblers hopping from under the branches, just as a Robin or a Thrush would do. They hopped over the parched and arid ground, ever and anon spreading out their tails, and chasing each other through the cactus. They seemed not to mind my presence at all; they were too engrossed with their courtship; and even the discharge of my gun only caused the surviving bird to hide itself for a moment under the branches. I never expected to meet with a Warbler in such dry arid situations as the present species inhabits; but in all its actions, nevertheless, it is an undoubted *Sylvia*."

Writing on the nesting-habits of the Rufous Warbler in Algeria, Salvin states (Ibis, 1859, p. 309):—"Near Ain Djendeli I used frequently to notice the present species about the trees that overhang the dry stony watercourses that run from the hills into the plain beneath. We never found a nest, however, in one of the above-mentioned places; and it would seem that the bird prefers a moister soil for its breeding-haunts, such as is afforded by the lowlands near lake Djendeli, where the tamarisk-trees grow on the banks of the Chemora and the small Aïn or spring. The nest we found usually placed conspicuously in the fork or on a branch of one of these trees, and with apparently no attempt at concealment. The heights at which the structure is placed vary from one to six feet from the ground. In one instance I found a nest among the roots of a tree in a bank-side, in a place where one would have expected in England to have found the nest of a Robin. The materials employed are the dead shoots of the tamarisk, which form the outside,—the inside and lining being usually coot's or duck's feathers mingled with wool or camel's hair; and, in nine cases out of ten, a small piece of serpent's skin is loosely placed in the bottom of the nest." It should be remarked that Canon Tristram also mentions this strange material in the nest-lining. In Southern Spain the Rufous Warbler is said by Saunders to build its nest between the leaves of the cactus, which forms the hedges in the vineyards.

The eggs of the Rufous Warbler are from three to five in number, and differ somewhat in the extent and colour of the markings. The usual type is very pale bluish white or French grey in ground-colour, irregularly marked and dashed with large brown spots, and with a few streaks of the same colour and pale violet-grey shell-markings. Another type is very pale blue in ground-colour, finely speckled with pale brown, the spots being most numerous on the large end of the egg. They measure from ·95 to ·8 inch in length, and from ·67 to ·59 inch in breadth. The eggs of the Rufous Warbler very closely resemble those of the Tawny Pipit (*Anthus campestris*); but, as a rule, the eggs of the latter bird are comparatively broader in proportion to their length. Canon Tristram states that his Palestine eggs of the Rufous Warbler are much more delicately and sparsely spotted than those from Africa.

The food of this bird is composed of insects, for which it searches not only in the branches but also on the ground. It may sometimes be seen turning over dung like a Thrush; and very often it flies into the air to catch a passing insect.

The typical form of the Rufous Warbler has the general colour of the upper parts pale chestnut-brown, with a buffish-white eye-stripe extending to the nape. The quills and wing-coverts are brown, margined on the outside web with buffish white. The tail is rich chestnut-brown; the two centre feathers have a more or less obscure broad terminal dark band, which is sometimes obsolete; and the remaining feathers have broad terminal white bands and nearly black subterminal bands. The whole of the underparts are very pale buffish white, slightly darker on the sides of the breast and flanks. Bill brown above, horn-colour below; legs, feet, and claws pale brown; irides hazel. The female does not differ in colour from the male; and the differences caused by age and season are very small.

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Genus PHYLLOSCOPUS.

The Willow-Warblers were originally included by Linnæus in his genus *Motacilla*, and were afterwards separated by Scopoli and placed in his genus *Sylvia* together with the rest of the Warblers. In 1802 Bechstein created the subgenus *Asilus* in his 'Ornithologische Taschenbuch,' p. 173, for the reception of the Willow-Warblers; but as, in 1767, Linnæus had already applied that name to a genus of insects in his 'Systema Naturæ' (i. p. 1006), it cannot be also applied to a genus of birds. In 1816 Koch, in his 'System der baierischen Zoologie,' i. p. 158, made an equally unsuccessful attempt to erect a genus for the reception of the Willow-Warblers, selecting for this purpose the name of *Ficedula*, a name which is open to three objections. In the first place, the *Motacilla ficedula* of Linnæus is not a Willow-Warbler, whatever else it may be; in the second place, in 1799 Cuvier made a genus *Ficedula* to contain the Flycatchers; and, in the third place, the genus *Ficedula* of Brisson appears to be synonymous with the genus *Motacilla* of Linnæus, and its type was probably a young or female Pied Flycatcher. In the following year Forster, in his 'Synoptical Catalogue of British Birds,' p. 54, was equally unfortunate in adopting the specific name *trochilus*, which Linnæus gave to the Willow-Warbler, as the name of his new genus, regardless of the fact that this name had already been applied by Linnæus (Syst. Nat. i. p. 189) to the Humming-birds. In 1826, however, Boie succeeded in finding a name which is open to no objection, and in the 'Isis' for that year (p. 972) established the genus *Phylloscopus* for the Willow-Warblers, making *P. trochilus* the type.

The Willow-Warblers are a group of about five-and-twenty little birds so nearly allied to the typical Warblers (*Sylvia*), the Tree-Warblers (*Hypolais*), the Reed-Warblers (*Acrocephalus*), the Grasshopper Warblers (*Locustella*), and the Grass-Warblers (*Lusciniola*), and especially to the Indian Flycatcher Warblers (*Abrornis*), that it is impossible to draw a hard and fast line between any of these genera, except by arbitrarily choosing some character and making it the standard of separation. In such nearly allied genera, where the intermediate species have not yet become extinct, ornithologists must accept with gratitude any character, however trivial, which seems to classify the species into natural groups.

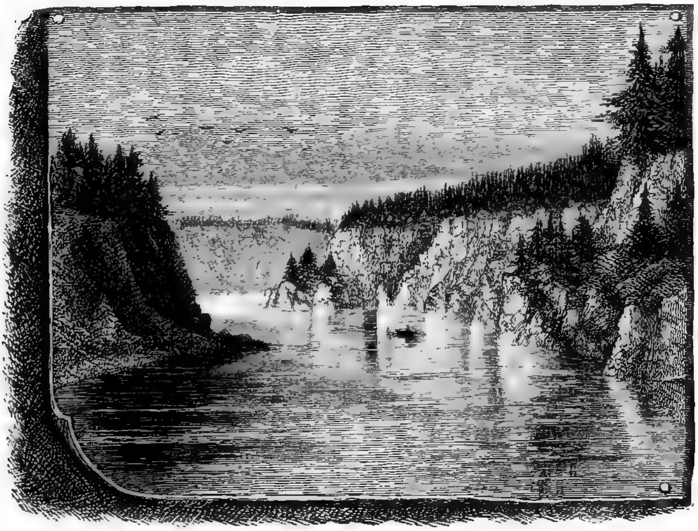
The principal characteristic of the Willow-Warblers is their semi-domed nest with the entrance at the side, a feature distinguishing them from all the genera alluded to except *Abrornis*. Typical examples of the Flycatcher Warblers have a very wide flat bill abundantly furnished with long rictal bristles, and have rounded wings, with the first primary half the length of the second, or nearly so. Many species, however, are so exactly intermediate that, when I wrote the volume of the British-Museum Catalogue of Birds containing the *Sylviinæ,* I should most certainly have considered whether some of them ought not to be included in the genus *Phylloscopus,* if my colleague for the time being had not cut the Gordian knot for me by having already absorbed them into the volume containing the *Muscicapidæ.*

From the other allied genera, the various species of which build cup-shaped nests, the yellow axillaries of the Willow-Warblers are a sufficient distinction, with the exception of two aberrant species of the genus *Hypolais,* which also have yellow axillaries. We must therefore find another character, and are obliged to fall back upon the comparative size of the bill and wing. The Tree-Warblers have large bills, the length of the culmen being about a fifth of the length of the wing; whilst the sub-generic group of the Willow-Warblers, which, like the Tree-Warblers, have no pale bar across the wings formed by the greater wing-coverts having pale tips, have small bills, the length of the culmen being about one sixth of the length of the wing.

The Willow-Warblers are essentially fly-catchers in their habits, and may constantly be seen catching flies upon the wing; but probably the greater part of their food is picked off the leaves. Accordingly their bills, if not very wide, are considerably depressed at the base, and the rictal bristles are well developed. Most of the species are migratory, the range of their seasonal distribution frequently extending over thousands of miles; consequently their wings are long, flat, and pointed, whilst the bastard primary is very small. The migration of others is confined to the plains within sight of the mountains where they breed. In these the wing is shorter, more concaved to fit the body, and rounded, whilst the bastard primary is larger, the vital energy required for its production not having apparently been absorbed in lengthening the adjoining primaries. The tail is generally even and frequently forked. All the species of the genus are soberly coloured, the upper parts varying from yellowish green to buffish brown, and the underparts from yellow to buff or white.

Probably all the species build a semi-domed nest on or near the ground, and lay white eggs spotted with red.

In their breeding-range the Willow-Warblers are Palæarctic, ranging from the Atlantic to the Pacific. Several species extend their range further north than the limit of forest-growth. Those species which do not breed within the Palæarctic region ascend the Himalayas until they reach an elevation where they can enjoy a Palæarctic climate. The southern winter range of the genus extends in Africa to the Cape of Good Hope, and in Asia to Ceylon and the islands of the Malay archipelago; but no species has as yet been found in Australia. Six species breed in Europe, and many more are accidental visitors on migration. Of these, three are regular summer visitors to our islands, and a fourth has accidentally visited our shores.



PHYLLOSCOPUS SIBILATRIX.

WOOD-WREN.

(Plate 10.)

Ficedula asilus major, *Briss. Orn.* iii. p. 482 (1760).
Motacilla sibilatrix, *Bechst. Naturforscher*, xxvii. p. 47 (1793); *id. Naturg. Deutschl.* iv. p. 388 (1795).
Sylvia sylvicola, *Mont. Trans. Linn. Soc.* iv. p. 35 (1798).
Sylvia sibilatrix (*Bechst.*), *Bechst. Orn. Taschenb.* i. p. 176 (1802); **et auctorum plurimorum** — *Temminck, Naumann, Bonaparte, Gray,* (*Schlegel*), (*Gould*), (*Dresser*), (*Newton*), *&c.*
Motacilla sylvatica, *Turton, Gen. Syst. Nat.* i. p. 587 (1806).
Ficedula sibilatrix (*Bechst.*), *Koch, Syst. baier. Zool.* i. p. 159 (1816).
Trochilus major, *Forst. Syn. Cat.* p. 54 (1817).
Curruca sibilatrix (*Bechst.*), *Fleming, Brit. An.* p. 70 (1828).
Sibilatrix sibilatrix (*Bechst.*), *Kaup, Natürl. Syst.* p. 98 (1829).
Phyllopneuste sibilatrix (*Bechst.*), *Brehm, Vög. Deutschl.* p. 425 (1831).
Phyllopneuste megarhynchos, *Brehm, Vög. Deutschl.* p. 425 (1831).
Phyllopneuste sylvicola (*Lath.*), *Brehm, Vög. Deutschl.* p. 426 (1831).
Sylvicola sibilatrix (*Bechst.*), *Eyton, Cat. Brit. B.* p. 14 (1836).
Phylloscopus sibilatrix (*Bechst.*), *Blyth, Cat. B. Mus. As. Soc.* p. 184 (1849).
Phyllopseuste sibilatrix (*Bechst.*), *Cab. Mus. Hein.* i. p. 33 (1850).

The Wood-Wren, though the largest species of Willow-Warbler, and perhaps the handsomest of the group, and certainly possessing the most marked song and the most peculiar call-notes, appears to have escaped the attention of Linnæus. Gilbert White, in his 'Natural History of Selborne,' clearly points out, apparently for the first time, the distinctness of this charming bird from the Willow-Wren and the Chiffchaff; but it was described as long ago as 1676 by Willughby and Ray, who had received an example from their friend Mr. Francis Jessop of Sheffield, on whose property the bird was probably as common as it is now, in spite of the close proximity of the villas of the steel-makers.

Though somewhat more local than its near allies, it is by no means uncommon in England and Wales. In Scotland it has not been recorded north of the Moray Firth; but our information on the ornithology of this district is so meagre that it may have been overlooked. In Ireland it is only known to have occurred in the counties of Fermanagh and Dublin. On the continent its range is even more restricted than that of the Chiffchaff. It is not known to have been obtained in Norway; but in Sweden it is found as far north as Upsala. It is very common in the Baltic provinces, but is rarer in South Finland. Though Alston and Harvie-Brown were mistaken in supposing that they found it near Archangel, it is recorded by Hencke as a rare summer visitor to that locality. It is common in

Central and Southern Russia, but does not appear to have been found east of Kazan. Bogdanow records it from the latter locality, and also obtained an example in the Terek valley in autumn. Ménétriés also records it from Lenkoran. Sabanäeff's remarks on its occurrence in the Ural, quoted by Dresser, appear to refer to the Icterine Warbler. It breeds in Transylvania and in Turkey; but in Greece, Asia Minor, and Palestine it is only known as passing through on migration. To the rest of Europe it is a regular summer visitor. It winters in North Africa, having been found to the west as far south as the Gold Coast, and to the east as far south as Abyssinia. A few appear to remain in Algeria to breed.

Either the Wood-Wren, or its favourite food, appears to avoid the cool damp summer of countries which come under the influence of the Gulf Stream. It is difficult otherwise to harmonize its absence in Norway and the north of Scotland, and its extreme rarity in Ireland, with its abundance in the Baltic provinces and its occurrence in the warm dry summers of Archangel. Its late arrival in this country also shows how careful it is to avoid the storms of spring. It is possible that the true reason of this peculiarity in the distribution of the Wood-Wren is its objection to cross the sea. In spite of its long and powerful wings, it apparently prefers to migrate over the land as much as possible. In spite of its abundance in the forests of Brunswick and Pomerania, where it seemed to me to be the commonest of the three Willow-Warblers, it is comparatively rare on the island of Heligoland. Whilst thousands of Willow-Wrens and Chiffchaffs are seen on this isolated rock both in spring and autumn, Gaetke writes of the Wood-Wren that "a solitary individual occurs rarely during the warm days of May and August. It is seldom seen amongst the few shrubs and trees which ornament the gardens of Heligoland, but almost always only on the rocky cliffs which surround the island. This is somewhat remarkable; for such exclusively forest birds as Woodpeckers and Jays avail themselves of the brushwood of the gardens, but the Wood-Wren does not, for some reason or other preferring the naked cliffs."

This bird arrives at its breeding-grounds in this country at least a fortnight later than its congeners. Its charming song is rarely heard in the woods and copses of Yorkshire until late in April. Then, when the trees are just bursting into leaf and the woods are gay with anemones and bluebells and other wild flowers, the Wood-Wren appears in great numbers. On their first arrival only the long-drawn-out plaintive call-note is heard; but in a few days they are in full song. On a sunshiny early morning the woods seem to be alive with them. They have just completed their spring moult; and, having waited for fine weather to cross the Mediterranean and the British Channel, they arrive in our woods in marvellously perfect plumage. In the early morning sun they look almost as delicate a yellowish green as the half-grown leaves amongst which they disport themselves.

In the hand the delicate shading of the eye-stripe, and of the margins of the feathers of the wings and tail, is exquisitely beautiful, but is almost all lost under the rude handling of the bird-skinner. The Wood-Wren is not at all shy, nor does he frequent exclusively the topmost branches of trees; and with reasonable caution, a good binocular brings him almost under your eye. During the pairing-season the restless tit-like search for food—in and out among the twigs, over and under the leaves, from bush to bush and tree to tree—is not so apparent. The little songster seems wholly devoted to his song, and remains singing at intervals from his twig, though ever and anon he leaves it for a short flight after a too tempting insect, which he catches on the wing, and takes to the nearest twig to repeat his song. In such a hurry is he to sing, that often, when flying from one tree to another, he begins his song on the wing, to finish it on his perch. The song, so aptly called by Gilbert White the "shivering" notes of the Wood-Warbler, when once heard can never be forgotten. It commences, for the first note or two, somewhat like that of the Willow-Wren, but rapidly increases in speed, finally running into a trill. It might be expressed on paper thus—*chit, chit, chit, chit, chitr, tr-tr-tr-tr-tr-tre.* The final trill somewhat resembles the note of the Grasshopper Warbler or the Lesser Redpole, or the prolonged "shivering" part of the song of the Common Wren; and during its utterance the wings and tail, if not the whole body of the bird, vibrate with the exertion. The loud and plaintive call-note is in spring a rapidly uttered *dee'-ur, dee'-ur, dee'-ur*; but in summer it alters somewhat, is less rapidly uttered, and the first syllable is less emphasized. The alarm-note is a *whit,* not unlike that of the Willow-Wren.

The food of the Wood-Wren is unquestionably insects of various kinds. Newton says that it eats neither fruit nor berries; but Naumann asserts that it is especially fond of elder-berries. It can scarcely be probable that it is exceptional in this respect. Almost all insectivorous birds are more or less *beccafici* in autumn.

Its flight is undulating, like that of most flat-winged birds; and it has a habit of dropping down somewhat spirally onto a twig with half-expanded wings, in a manner reminding one of the Tree-Pipit.

In Yorkshire the Wood-Wren is much commoner than the Chiffchaff, but more local. It is rarely seen in gardens or very small copses, and prefers the larger woods. I have never seen it more abundant than in the large pine- and beech-forests of North Germany.

The nest, which is extremely difficult to find, is always on the ground, concealed amongst the grass, heath, or bilberry. It is semi-domed, composed of dry grass, with sometimes a little moss or a few leaves, and lined with horsehair, not with feathers. The eggs vary in number from five to seven, and are pure white in ground-colour, spotted and blotched with purplish brown, and with numerous shell-markings of violet-grey. Some eggs are much more thickly marked than others: in some the spots are small; in others they are confluent in places and form several large pale blotches, thickly intermingled with small and darker spots and streaks. They measure from ·7 to ·6 inch in length, and from ·59 to ·53 inch in breadth. The peculiarities of the Wood-Warbler's eggs, compared with the eggs of its British congeners, are their average larger size, more numerous and richer brown markings, and the underlying spots of violet-grey. So far as is known, the only eggs of any other Willow-Warbler they can be confused with are those of Bonelli's Warbler (*P. bonellii*); but the eggs of this bird are much smaller: otherwise the markings are precisely the same in colour and distribution.

The adult Wood-Warbler in spring plumage has the general colour of the upper parts yellowish green, yellowest on the rump and upper tail-coverts. A distinct greenish yellow eye-stripe extends from the base of the bill as far as the crown; the feathers before the eye, and behind the eye as far as the crown, are olive-green; and the wing-coverts are olive-green with paler edges. The quills are brown, narrowly tipped with greyish white, the outside webs edged with yellowish green, and emarginated as far as the fourth primary; and the margins to the innermost secondaries are broad and pale. The tail-feathers are brown, the outside webs edged with yellowish green, and the inside webs having a narrow greyish-white margin. The general colour of the underparts is pure white, suffused with yellow on the chin, throat, and fore neck, occasionally with a trace of yellow on the flanks and the basal part of the under tail-feathers. The axillaries, under wing-coverts, and thighs are yellow. Bill dark brown, paler at the base of the under mandible; legs, feet, and claws brown; irides hazel. The summer plumage of the Wood-Wren is very similar to the spring; for, owing probably to its retiring habits and the more limited range of its migration, and possibly to the firmer texture of its feathers, its plumage suffers little from abrasion. The autumn plumage is similar to that of spring. The Wood-Warbler may always be distinguished from its near ally the Willow-Warbler by its bright yellow eye-stripe, by its greener upper parts, larger size, and by its very small first primary, the exposed part only measuring from 0·3 to 0·4 inch, whereas in the Willow-Warbler it is usually 0·6 inch.

PHYLLOSCOPUS TROCHILUS.

WILLOW-WREN.

(Plate 10.)

Ficedula asilus, *Briss. Orn.* iii. p. 479 (1760).
Motacilla trochilus, *Linn. Syst. Nat.* i. p. 338 (1766); **et auctorum plurimorum**—(*Temminck*), (*Naumann*), (*Gould*), (*Bonaparte*), (*Degland & Gerbe*), (*Loche*), (*Gray*), (*Newton*), (*Sharpe*), (*Dresser*), *&c.*
Sylvia trochilus (*Linn.*), *Scop. Ann. I. Hist. Nat.* p. 160 (1769).
Motacilla fitis, *Bechst. Naturg. Deutschl.* iv. p. 678 (1795).
Sylvia fitis (*Bechst.*), *Bechst. Orn. Taschenb.* i. p. 187 (1802).
Ficedula fitis (*Bechst.*), *Koch, Syst. baier. Zool.* i. p. 159 (1816).
Sylvia flaviventris, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 241 (1817).
Trochilus medius, *Forst. Syn. Cat.* p. 54 (1817).
Phylloscopus trochilus (*Linn.*), *Boie, Isis,* 1826, p. 972.
Regulus trochilus (*Linn.*), *Fleming, Brit. An.* p. 72 (1828).
Phyllopneuste arborea, *Brehm, Vög. Deutschl.* p. 427 (1831).
Phyllopneuste fitis (*Bechst.*), *Brehm, Vög. Deutschl.* p. 427 (1831).
Phyllopneuste trochilus (*Linn.*), *Brehm, Vög. Deutschl.* p. 429 (1831).
Sylvia melodia, *Blyth, Rennie's Field Nat.* i. p. 425 (1833).
Curruca viridula, *Hempr. & Ehrenb. Symb. Phys., Aves,* fol. *bb* (1833).
Sylvicola trochilus (*Linn.*), *Eyton, Cat. Brit. B.* p. 13 (1836).
Ficedula trochilus (*Linn.*), *Keys. u. Blas. Wirb. Eur.* p. 185 (1840).
Sylvia tamarixis, *Crespon, Fauna Merid.* i. p. 209 (1844).
Sylvia angusticauda, *Gerbe, Faun. de l'Aube,* p. 139, *fide Degl. Orn. Eur.* i. p. 549 (1849).
Phyllopneuste eversmanni, *Bonap. Consp.* i. p. 289 (1850).
Silvia meisneri, *Pässler, Naum.* 1851, p. 56.
Phyllopneuste major, *Tristram, Ann. Nat. Hist.* 1871, viii. p. 29 (*nec Forster*).
Phylloscopus gaetkii, *Seebohm, Ibis,* 1877, p. 92.
Phyllopseuste trochilus (*Linn.*), *Giebel, Thes. Orn.* iii. p. 121 (1877).

Of all the Willow-Warblers the common Willow-Wren, as it is generally called, is the most abundant and the most widely distributed. The exquisite delicacy of its plumage, the slender gracefulness of its form, its active Tit-like habits, its pretty little song, and, above all, its carefully concealed domed nest and beautiful pink eggs make it a general favourite. There is scarcely a plantation, or garden, or copse in Great Britain or Ireland where the Willow-Wren is not a common bird in the breeding-season. On the continent it is equally common. I found it abundant on the fjelds of Lapland both in the Porsanger and Varanger fjords; and on the tundras of the Petchora and Yenesay, up to lat. 70°, wherever the valleys were sheltered enough to allow of the growth of willow copses. It breeds throughout Central and Western Europe, a few even remaining during summer in North-west Africa; but towards the east its breeding range does not extend so far south. There is no evidence of its breeding in South Russia;

and Dresser's statement that it is generally distributed there in summer is no doubt an error, as Goebel in South-west Russia, Bogdanow in the Caucasus, and Hencke at Astrakhan all agree that it is only seen on the spring and autumn migrations. Danford and Harvie-Brown found it breeding in Transylvania; but in Turkey, Greece, Asia Minor, and Palestine it is only found in winter. The Siberian birds appear to migrate west in autumn, as the Willow-Wren has not been found in Turkestan, though a few appear to winter in Persia. A few winter in Spain and Sicily; but the great winter quarters of this bird are in Africa. It abounds in the oases of the desert, is very common in the valley of the Nile, and has been sent in collections from the Gambia river, Senegal, the Congo, Damara Land, the Cape, Natal, and the Transvaal. From the latter country I have examples in full spring moult.

The Willow-Wren is one of the earliest birds in spring to migrate. In the south of England, as in North Germany, it arrives towards the end of March, in Yorkshire during the first week of April, and in the middle parts of Scotland (according to Macgillivray) about the 20th or 25th of April. In the valley of the Petchora, in lat. 65°, we first heard its notes on the 20th of May; and on the Arctic circle in the valley of the Yenesay it did not arrive until the 4th of June. It leaves this country in September. In the last week of that month I observed great numbers on Heligoland; and Gaetke tells us that it frequently appears on that island in considerable numbers as early as the middle of August.

The Willow-Wren is such a common bird that it is difficult to say where it is not to be found. Its cheerful song may be heard in the copses of our wildest moorlands, or on the few trees that struggle for existence among the rocks and peat on the banks of the mountain-becks, amongst the furze-bushes on the common, in plantations and woods of all kinds of trees, in the farm as well as the garden, and even amongst the trees and shrubs in front of the villas almost in the middle of our blackest towns.

The Willow-Wren is especially common in the neighbourhood of Sheffield. All the world knows what a black place Sheffield is. The ill-thriven village that forged the penblade wherewith Chaucer whittled his crow-quill was proverbial for its blackness; and tradition shows us in legendary perspective the tilts on the banks of the Don where the Brigantine warriors took their arrows to be steeled by the half-savage sons of Vulcan—the green meadows by the river-side scarred by their coal-pits, and the grand old oaks and silvery birches on the mountain-slope charred by the smoke of their rude forges. The huge armour-plate rolling-mills have brought the town to its climax of blackness. Passengers by the express from the emporium of gold to Cottonopolis shrug their shoulders as they near the Victoria Station, and fancy they have reached the zero of physical as well as of moral good. The view over the Wicker is indeed a dismal one, almost picturesque from excess of gloom. You seem to be looking upon a forest of chimney-studded roofs, hazy and indistinct, and soon lost in the thick smoke which hangs like a great black rain-cloud over the sky, whilst here and there, where the engine-chimneys are thickest, the steam hangs about them like the "sobs" of mist that rise out of the Wharncliffe woods and hang about the loftiest trees, looking white against the grey rain. Underneath this heaven of smoke, somewhere at the bottom of this valley of chimneys, flows the dirty, sullen, ill-used river Don, groaning under the weight of his labour, monotonously turning his hundred wheels and tilts day and night, and patiently bearing his burden of blackness. In the early part of this century the Don was a gay, laughing stream, purling amongst mossy stones or dropping into dark pools full of trout. Now it is a barren river, muddied by drains and sewers, poisoned by divers acids, redolent of unwholesome gases, and stained with the hideous yellow of "wheelswarfe." About six miles out of the town it nestles close under the Wharncliffe woods; and about a mile further on, at its junction with the Yewden, the sturdy oaks almost hide the rocky bed of the stream from sight. From the top of the crags at Wharncliffe you look down upon one of the finest landscapes in Yorkshire. Its most marked feature is the Wharn cliffs (Danish *Værnclippe*), or bulwark cliffs, which run like a rampart on the hill-sides. Beyond these rampart cliffs is the majestic sea of wood, with its roll of forest wave, almost rivalling the ocean in sublimity. In the distance, to the right, the river winds through the Stocksbridge valley, past the large works of Samuel Fox, parasol- and umbrella-frame maker to the two hemispheres; and to the left the valley of the Yewden (Yew-den or Yew-dale, the dale or valley of yew-trees) lies spread out like a map, leading up to the Bradfield moors. All this district, from the moor-edges, where Grouse are breeding, down to the last cottage-garden, which looks like an oasis of green in the desert of shops, abounds with Willow-Wrens.

Early in April they arrive by thousands, and spread themselves over this and surrounding districts. First the males arrive, hungry and silent; and you may watch them on the pines and larches diligently seeking for insects, never still for a moment, searching every nook and cranny, as often hanging under a leaf or twig as perched upon it. Wonderfully active, they are to be seen in almost every conceivable position; and not unfrequently they make a short flight into the air to catch an insect on the wing, or hover over a leaf or under a pine-cone to pick off some beetle or fly which they could not otherwise reach. A day or two after their arrival they commence their simple little song; and during the pairing-season their half-dozen unassuming notes in a descending scale, like a little peal of distant bells, resound from every tree. In early spring these birds have a sibilant chirp, which sometimes approaches almost a hiss, like the spitting of a cat, when the male is chasing the female fast and furious through the woods. The usual call-note is a *whit*, almost like that of the Chaffinch or Redstart; this is often heard if you approach too near the nest. If you frighten the bird off, especially if the eggs are nearly hatched, a still more plaintive note is heard—a rapidly uttered sound, something like *na, na, na, na.*

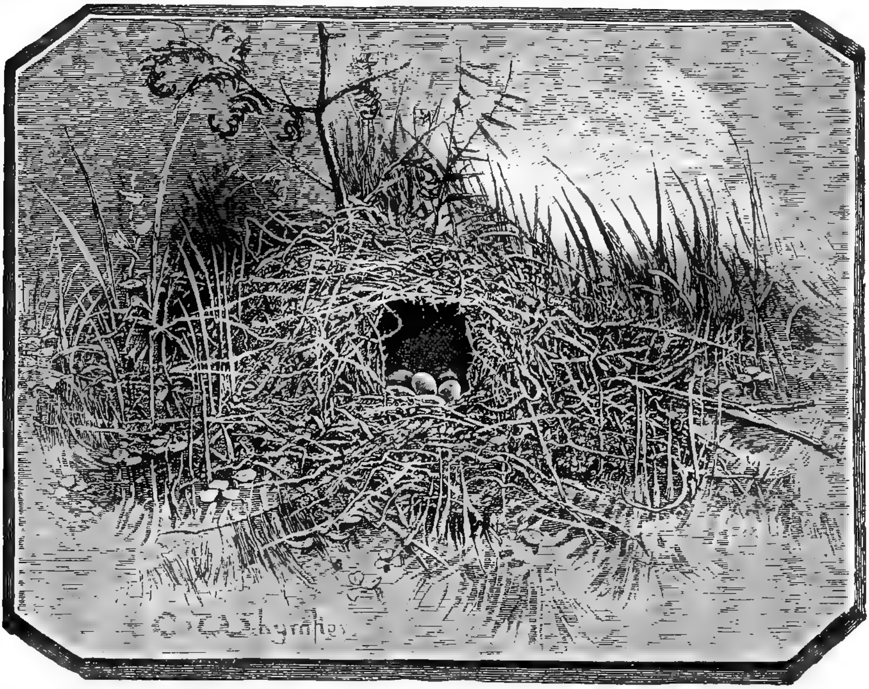
The Willow-Wren is sometimes seen on the ground, where it hops like a Robin; sometimes it perches on a rail; but it is essentially a bird of the bushes and trees. Its flight is undulating but rapid. This bird moults early; and the song is partially resumed in August. Its food consists principally of small insects; but in autumn it also eats currants, elder-berries, and other soft fruits.

The nest is almost always concealed amongst grass on the ground, and is almost impossible to find, except by watching the female drop down on to it, or by accidentally frightening her off. It is semi-domed, the rim which forms the entrance being at an angle of about 45°. It is somewhat loosely constructed outside with dead grass, and sometimes a little moss or a few dry leaves. Inside it is more carefully finished, and is lined with fine roots, horsehair, and lastly with a profusion of feathers.

The eggs vary in number from five to eight, and are white or pale creamy white in ground-colour, blotched, spotted, and speckled with pale brownish red. In some specimens the spots are small and finely powdered over the whole shell; in others the markings are confluent, usually at the large end of the egg, sometimes forming a zone, and sometimes with a few streaks of rich brown. In some examples the spots are much richer and more numerous than in others. In shape they vary not a little, sometimes being almost round. They vary in length from ·73 to ·56 inch, and in breadth from ·5 to ·45 inch.

The eggs of all the British Willow-Warblers possess certain characteristics which readily distinguish them from each other. Those of the Common Willow-Warbler are readily identified by their pale reddish-brown markings, those of the Chiffchaff by their less numerous and very dark red spots; and those of the Wood-Wren are darkest of all, being thickly marked with purplish coffee-brown and underlying spots of pale violet-grey. From the eggs of many of the Tits it is a more difficult matter to distinguish the eggs of the two former Willow-Warblers; but the situation and shape of the nest are sufficient for their identification.

The adult Willow-Warbler in spring plumage has the general colour of the upper parts olive-green, somewhat yellower on the rump. An indistinct greenish-yellow eye-stripe extends from the base of the bill as far as the crown; the feathers before the eye, and behind the eye as far as the crown, are dark olive-green. The wing-coverts are olive, edged with olive-green; and the quills are brown, narrowly tipped with greyish white, and having the outside webs edged with yellowish green and emarginated as far as the fifth. The tail-feathers are brown, the outside webs edged with yellowish green, and the inside webs have a narrow greyish-white margin. The general colour of the underparts is white, suffused all over with yellow, and on the breast and flanks with buff. The axillaries, under wing-coverts, and thighs are yellow. Bill dark brown above, slightly paler below; legs, feet, and claws brown; irides hazel. In summer the upper parts are greyer; in high latitudes occasionally with all the yellow and green abraded, leaving the general colour earthy brown, the eye-stripe having faded into greyish white. Much of the yellow of the underparts also becomes abraded; and in high latitudes all, except that on the axillaries and under wing-coverts, disappears, leaving the buffish yellow of the breast and flanks pale grey. The autumn plumage is yellower than that of spring. Birds of the year are even more yellow than adults, the whole of the underparts being uniform buffish yellow.



WILLOW-WREN'S NEST.

PHYLLOSCOPUS RUFUS*.

CHIFFCHAFF.

(Plate 10.)

Sylvia hippolais (*Linn.*), *apud Lath. Gen. Syn. Suppl.* i. p. 87 (1787).
Motacilla rufa et lotharingica, *Linn. fide Bechst. Naturg. Deutschl.* iv. p. 682 (1795).
Sylvia rufa, *Bechst. Orn. Taschenb.* i. p. 188 (1802); **et auctorum plurimorum**—*Wolf, Temminck, Boie, Naumann, (Bonaparte), (Schlegel), (Degland & Gerbe), (Keyserling & Blasius), Gray, (Saunders), (Fritsch), Hewitson, (Salvadori), (Gould), (Heuglin), (Lindermayer), (Blyth), (Tristram), Cabanis), (Loche), (Doderlein), (Howard Saunders), (Shelley), (Godman), (Rennie), (Eyton), (Giebel), &c., &c.*
Motacilla hippolais, *Linn. apud Turton, Linn. Syst. Nat.* i. p. 587 (1806).
Ficedula rufa (*Bechst.*), *Koch, Syst. baier. Zool.* i. p. 160 (1816).
Sylvia collybita, *Vieill. N. Dict. d'Hist. Nat.* xi. p. 235 (1817).
Trochilus minor, *Forst. Syn. Cat.* p. 54 (1817).
Sylvia abietina, *Nilss. K. Vet.-Ak. Handl.* 1819, p. 115.
Regulus hippolais (*Linn.*), *apud Fleming, Brit. An.* p. 72 (1828).
Phylloscopus rufus (*Bechst.*), *Kaup, Natürl. Syst.* p. 94 (1829).
Phyllopneuste sylvestris, *Brehm, Vög. Deutschl.* p. 431 (1831).
Phyllopneuste solitaria, *Brehm, Vög. Deutschl.* p. 432 (1831).
Phyllopneuste pinetorum, *Brehm, Vög. Deutschl.* p. 432 (1831).
Phyllopneuste rufa (*Bechst.*), *Brehm, Vög. Deutschl.* p. 433 (1831).
Trochilus rufa (*Bechst.*), *Rennie, Field Nat.* i. p. 52 (1833).
Sylvia loquax, *Herbert, White's N. H. of Selb.* p. 55, note (1833).
Sylvicola rufa (*Bechst.*), *Eyton, Cat. Brit. B.* p. 14 (1836).
Sylvia brevirostris, *Strickl. Proc. Zool. Soc.* 1836, p. 98.
Phyllopneuste hippolais (*Linn*), *apud Macgill. Br. B.* ii. p. 379 (1839).
Phyllopneuste brevirostris (*Strickl.*), *Bonap. Consp.* i. p. 289 (1850).
Phylloscopus habessinicus, *Blanf. Ann. Nat. Hist.* 1869, p. 329.

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* The attempt to ignore the well-known name which Bechstein gave to the Chiffchaff more than eighty years ago, and which has been in almost universal use ever since, and to substitute for it an obscure name absolutely unknown, except to the ornithological bookworms, is an example of red tape and pedantry which is almost inconceivable. The reason alleged for this mischievous change is that, according to the Stricklandian code, the name of *Phylloscopus rufus* cannot be applied to the Chiffchaff because Boddaert had forestalled Bechstein by calling the Whitethroat *Motacilla rufa.* To this may be replied:—1st, Boddaert did not intend to apply this name to the Whitethroat; 2nd, if he did by accident so apply it, the Chiffchaff not belonging to the same genus as the Whitethroat (though Boddaert may have thought it did), its right to bear the name cannot be affected under the rules by any name previously applied to any bird belonging to a different genus; 3rd, if the rules can be so twisted as to warrant the change, then they are more honoured in the breach than in the observance.

Phylloscopus brehmi, *Homeyer, Erinn. Vers. deutschl. Orn.* 1870, p. 48.
Phylloscopus abyssinicus, *Blanf. Geol. & Zool. Abyss.* p. 378, pl. iii. fig. 2 (1870).
Phyllopneuste brehmi (*Homeyer*), *Proc. Zool. Soc.* 1872, p. 25.
Phyllopneuste tristrami, *Brookes, fide Dresser, Proc. Zool. Soc.* 1872, p. 25.
Phylloscopus collybita (*Vieill.*), *Newton, ed. Yarr. Brit. B.* i. p. 437 (1873).
Phyllopseuste rufa (*Bechst.*), *Gieb. Thes. Orn.* iii. p. 120 (1877).

The Chiffchaff, though it has a much more restricted range than the Willow-Wren, and is seldom so abundant, is nevertheless a common bird in most parts of England and Wales. In Scotland and Ireland it is said to be more local, but has undoubtedly occurred in most counties, including the Orkneys, the Shetland Isles, and the Hebrides. In most of the southern counties of England it is a somewhat commoner species than the Willow-Wren; but in Yorkshire, though common enough, it is rare in comparison with the abundance of the latter bird.

On the continent the Chiffchaff does not range quite up to the Arctic circle. In Norway and Sweden it is rarely found above lat. 65°. It is not uncommon in Finland, and occurs in Russia up to Archangel and the main valley of the Volga. In the valleys of the Petchora and the Kama, and east of the Ural mountains, the Chiffchaff is replaced by the Siberian Chiffchaff (*Phylloscopus tristis*). The Chiffchaff breeds in Transylvania; but in South Russia, the Caucasus, and Turkey it appears to be principally known in spring and autumn on migration, instances of its breeding or wintering in these districts being noted as very exceptional. In Persia, Asia Minor, Palestine, and Greece it is a regular winter visitor. In Spain, the south of France, and Italy the Chiffchaff may almost be considered a resident. It is undoubtedly so on the Canary Islands; but in South-west Europe it is more probable that the birds are migratory, but that in this region the summer and winter ranges overlap. The Chiffchaff is a regular winter visitor to North and North-east Africa as far south as Abyssinia, but it has not been known to remain in any part of the mainland to breed. Occasionally individuals have been known to winter in the south of England, and in mild seasons even in North Germany.

It is very doubtful if Linnæus distinguished between the three Willow-Wrens. He was probably but very little of a field-ornithologist, and not much acquainted with the songs of birds. In the 'Fauna Suecica' and in the tenth edition of the 'Systema Naturæ' he appears to have distinguished the Chiffchaff under the name of *Motacilla acredula*; but in the twelfth edition he degraded it to the rank of a variety of the Willow-Wren. Gilbert White, in his charming 'Natural History of Selborne,' seems to have been the first naturalist to clearly discriminate between the three species; and in 1768 he announced his discovery to Pennant; but the bookmaker does not seem to have believed the story of the field-naturalist, and in 1776 Pennant's 'British Zoology' records the "Yellow Wren" only. It seems very extraordinary how birds having such totally different notes could have been confounded together for so long. The song of the Chiffchaff might be confounded with that of the Siberian Chiffchaff, but bears no resemblance whatever to the song of either the Wood-Wren or Willow-Wren. It is a loud unmusical double note, *chiff, chaff*; *tsy, tsa*; *till, tell*; *chink, chunk*, or whatever other monosyllables the listener may fancy it resembles. Occasionally a third or even a fourth note, slightly differing from the usual note, is introduced, but quite as monotonous and unmusical. If these notes were not confined to the spring and summer, and apparently discontinued during the winter, as are also the similar notes of the Siberian Chiffchaff, one might be inclined to regard them as call-notes, and not of the nature of a song at all. Much confusion arises, and many errors are initiated or propagated, by the fact that ornithologists copy each other, instead of going to Nature for their facts. Most of the accounts of the habits of birds in Dresser's 'Birds of Europe' are condensed from Naumann's 'Birds of Germany,' and in many cases are incorrectly translated from the writings of that great field-ornithologist; but perhaps the most remarkable instance of this kind of ornithological composition is to be found in Morris's description of the song of the Chiffchaff, which is borrowed from Meyer, and spoiled in the borrowing. Meyer says:—"Its note, though it cannot be called a song, is not altogether unmusical; it consists sometimes of only two notes, which have been likened to *chiff, chaff*, whence it has derived its name; but we have heard its cry frequently extended to three notes, each differing from the other, as if it were *chiff, cheff, chaff*, singing amongst the tops of trees like the chime of little bells." If Meyer had lived in Sheffield in the days of cast-steel bells, some excuse might have been found for his far-fetched simile. Morris seems, however, to have been quite fascinated with this poetical image, and enlarges upon it. Because Meyer says that the notes are not altogether unmusical, and that its cry is frequently extended to three notes, each differing from the other, Morris generalizes upon the facts, and writes "the song" is "melodious and varied;" and, as if anxious to betray the source of his information, adds:—"It comes from the tops of the trees with a ringing sound, reminding one of the faint chime of the distant village church bell,"—a by no means unpoetical version of a fellow naturalist's description, but, applied to the clear, loud, monotonous, and, in comparison with the more melodious songs of its nearest kinsmen, somewhat harsh notes of the Chiffchaff, to be described only as unmitigated nonsense. The alarm-note of the Chiffchaff is a *whit* not unlike that of the Willow-Wren, but not so loud, somewhat more prolonged and slightly shriller. A third note is often heard, something like *tr-r-r*.

In its habits the Chiffchaff does not differ much from the Willow-Wren. It is quite as active and restless, but perhaps is more often seen near the tops of lofty trees, and is undoubtedly a more difficult bird to shoot. Like the Siberian Chiffchaff, it hurries through the woods as if its object were to cover as much ground as possible. Its flight is not so rapid as that of the Willow-Wren, but is more undulating, the rapid motion of its rounded wings apparently requiring frequent short rests.

Its food consists of gnats, small beetles, and caterpillars, and of small insects of all kinds, which it generally picks up on trees, but sometimes takes in the air or on the ground. It seems to be more confined to woods and plantations than the Willow-Wren, only venturing into large gardens, and seldom visiting the stunted trees on the edges of the moors. In autumn, when the young are fledged, it will come into the gardens to feed on the currants, or frequent the underwoood in the plantations to regale itself with elder-berries.

The special interest attaching to the Chiffchaff is that it is one of the earliest summer migrants to land on our shores, and in the cultivated districts, where the Wheatear is seldom seen, is the first bird of passage to announce to us the return of spring.

It seems at first sight difficult to imagine how two such closely allied birds as the Willow-Wren and Chiffchaff, which differ so little in their geographical distribution, could have become differentiated. But if we assume that the common ancestors of the two species lived in Europe before the glacial period, we may conjecture that when the ice drove them across the Mediterranean, half of them took refuge in the valley of the Nile, whilst the other half were isolated in Algeria and the surrounding countries, which then probably formed a large island. During the hundred and fifty thousand years that this state of things is supposed to have continued, the colony in Algeria may have had time enough to develop into Chiffchaffs, whilst that in the valley of the Nile became Willow-Wrens. A third colony may have been isolated in Turkestan, from which the Siberian Chiffchaffs may be descended. Special circumstances in the valley of the Nile may have caused the intermediate colony to alter more than the two outside ones, which may resemble each other because they both have changed but slightly from the common ancestors. After the glacial period was over, each colony would naturally follow the retreating ice, and again spread over its original area of distribution, the central colony overlapping in its new area that of its eastern and western rivals, and possibly destined eventually to supersede and exterminate them. The eastern range of the Chiffchaff reaches the western limit of the Siberian Chiffchaff, about longitude 50°; but the Willow-Wren covers the area of distribution of both birds in the breeding-season, except perhaps the Canary Islands in the west and the basin of Lake Baikal in the east.

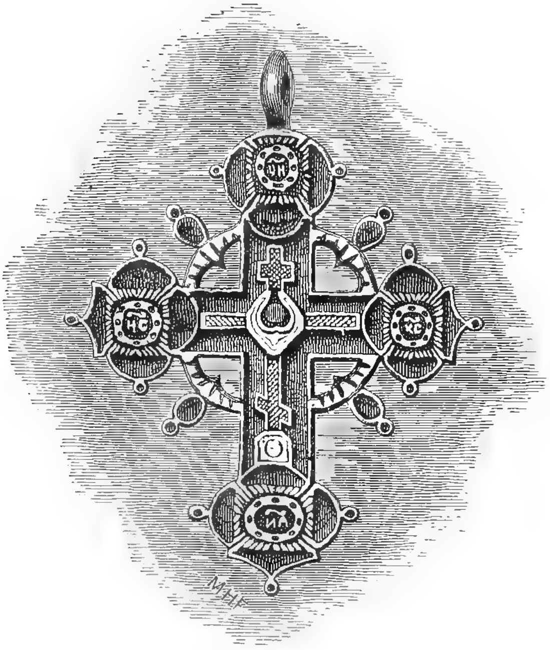
In the south of England the Chiffchaff arrives about the end of March, in Yorkshire early in April, and in Edinburgh (according to Macgillivray) about the third week of April. My friend Gaetke writes to me from Heligoland :—"The Chiffchaff visits our rock in considerable numbers, though not so frequently as the Willow-Warblers. It arrives earlier in spring, and lingers later in autumn than any of its congeners, and does not seem frightened of rough weather. The spring migration commences as early as the end of March; and the autumn migration continues into November. It is somewhat remarkable that a bird which chooses such cold weather for its migrations should not breed so far north as many other Warblers."

The nest of the Chiffchaff does not differ from that of the Willow-Wren or that of the Siberian Chiffchaff. It is semi-domed, composed of dried grass, rather loosely made outside, but inside very neat and lined with roots, horsehair, and finally with a profusion of feathers. Like that of the Siberian Chiffchaff, but unlike that of the Willow-Wren, it is often placed a foot or two from the ground. Occasionally, however, both the Chiffchaffs breed in the grass on the ground.

The eggs are from five to seven in number, and vary from pure white to pale creamy white in ground-colour. There are two types of Chiffchaff's eggs. The commonest type is spotted, chiefly at the large end of the egg, with very dark reddish brown. Belonging to this type are certain varieties, in which the markings are very minute and more evenly distributed over the entire surface of the egg. In the second type the spots are very much larger and likewise paler and not so numerous. Underlying spots of violet-grey are seen sparingly in the eggs of this bird. The eggs vary in length from ·65 to ·55 inch, and in breadth from ·5 to ·45 inch.

The adult Chiffchaff in spring plumage has the general colour of the upper parts olive-green, slightly yellower on the rump; the eye-stripe is somewhat ill-defined, and is greyish white, with a shade of yellow, and extends only a short distance behind the eye; the lores and the feathers behind the eye are olive; the wing-coverts and quills are brown, edged on the outside webs with olive-green, and are emarginated as far as the sixth. The quills are narrowly tipped with white; and the tail-feathers are brown, the outside webs edged with yellowish green, and the inside webs with a narrow greyish-white margin. The general colour of the underparts is white, shading into grey on the breast and flanks, and more or less suffused all over with yellow; the axillaries, under wing-coverts, and thighs are yellow. Bill dark brown above, slightly paler below; legs, feet, and claws dark brown; irides hazel. The Chiffchaff suffers considerably from abrasion during the perils of migration: the upper parts fade into olive-grey; the eye-stripe and underparts lose some of their yellow; and the pale tips to the quills disappear. After the autumn moult the whole of the plumage becomes suffused with buffish yellow, which is almost pure pale buff on the eye-stripe, breast, flanks, and under tail-coverts. The buffish yellow pervading the whole of the autumn plumage is never entirely lost by abrasion in winter.

The Chiffchaff may be distinguished from the Willow-Warbler by its wing-formula. In the present species the second primary is intermediate in length between the sixth and ninth; whilst in the Willow-Warbler it is almost invariably between the fifth and sixth. A further distinction may be found in the almost black legs of the present bird and its browner plumage.



PHYLLOSCOPUS SUPERCILIOSUS.

YELLOW-BROWED WILLOW-WREN.

(PLATE 10.)

? Motacilla superciliosa, *Gmel. Syst. Nat.* i. p. 975 (1788); **et auctorum plurimorum**—(*Cabanis*), (*Schrenck*), (*Blyth*), (*Radde*), (*Gould*), (*Gray*), (*Newton*), (*Dresser*), (*David & Oustalet*), *&c.*

? Sylvia superciliosa (*Gmel.*), *Lath. Ind. Orn.* ii. p. 526 (1790).

Regulus modestus, *Gould, apud Hancock, Ann. Nat. Hist.* ii. p. 310 (1839).

Regulus inornatus, *Blyth, J. A. S. Beng.* xi. p. 191 (1842).

Phylloscopus modestus (*Gould*), *apud Blyth, J. A. S. Beng.* xii. p. 963 (1843).

Phyllopneuste modesta (*Gould*), *apud Blyth, Ann. Nat. Hist.* xii. p. 98 (1843).

Reguloides modestus (*Gould*), *apud Blyth, J. A. S. Beng.* xvi. p. 442 (1847).

Sylvia (Phyllopneuste) proregulus (*Pall.*), *apud Midd. Sib. Reise,* p. 183 (1833, *partim*).

Phyllobasileus superciliosus (*Gmel.*), *Cabanis, Journ. Orn.* 1853, p. 81.

Reguloides proregulus (*Pall.*), *apud Horsf. & Moore, Cat. B. Mus. E.I. Co.* i. p. 342 (1854).

Ficedula proregulus (*Pall.*), *apud Schlegel, Vog. Nederl.* pp. 130, 241 (1854).

Phyllopneuste proregulus (*Pall.*), *apud Blasius, Naum.* viii. p. 311 (1858).

Sylvia bifasciata, *Gaetke, Naum.* viii. p. 419 (1858).

Phyllopneuste (Phyllobasileus) superciliosa (*Gmel.*), *Schrenck, Reis. Forsch. Amur-Lande,* i. p. 363 (1860).

Sylvia (Phyllopneuste) superciliosa (*Gmel.*), *Naum. Vög. Deutschl.* xiii. pt. 2, p. 74 (1860).

Reguloides superciliosus (*Gmel.*), *Blyth, Ibis,* 1862, p. 386.

Phylloscopus pallasii, *Dubois, Ois. Eur.* p. 83 (1862).

Phyllopneuste superciliosa (*Gmel.*), *Bolle, Journ. Orn.* 1863, p. 60.

Regulus superciliosus (*Gmel.*), *Gray, Cat. Brit. B.* p. 54 (1863).

Phylloscopus superciliosus (*Gmel.*), *Crommelin, Ned. T. D.* iii. p. 244 (1866).

Sylvia inornata (*Blyth*), *Gray, Hand-l. B.* i. p. 216. no. 3066 (1869).

Phyllopseuste proregulus (*Pall.*), *apud Giebel, Thes. Orn.* iii. p. 120 (1877).

The breeding-range of the Yellow-browed Warbler is supposed to be confined to the pine-forests of North-eastern Siberia, from the valley of the Yenesay eastwards to the Pacific, and from the mountains of Lake Baikal northwards to the Arctic circle. It passes through Mongolia and North China on migration, and winters in South China, Assam, Burma, and North-east India. Like some other Siberian birds which winter in South-east Asia, a few examples appear more or less regularly to take the wrong turning at Yenesaisk, and, instead of accompanying the main body of the migratory species, which follow the course of the Angora through Lake Baikal into the valley of the Amoor, join the smaller stream of migration, which flows westwards into Persia and Europe.

The history of the Yellow-browed Warbler is quite a little romance, and almost as difficult to follow as the most complicated plot of a modern novel. It has been confused with so many of its near allies, discovered and rediscovered, named and renamed so many times, that, even after its synonymy has been cleared from the mere blunders of obscure writers, the list of names, each of which is an alias of the Yellow-browed Warbler, is a most formidable one. It is impossible to say whether Latham's bird was this species or not. He says, on the authority of Pennant, that it occurs in Russia, where, so far as we know, the bird is as rare as it is in England. Neither does he mention the important and conspicuous character of the two wing-bars. Latham, like Linnæus and too many modern ornithologists, did not describe his birds, but only gave a short diagnosis, intended to be sufficient to distinguish them from their near allies. Diagnoses are all very well until new species are discovered, when they generally become utterly worthless.

It is probable that Messerschmidt was the first discoverer of this species. He found it in the valley of the Lena in East Siberia. Pallas did not add any thing to our knowledge of it, except the record of Messerschmidt's birds, which he suggests may be females of his *Motacilla proregulus*.

The bird was practically unknown until it was discovered by Hancock, who was fortunate enough to shoot one, on the 26th of September 1838, on the sea-banks near Hartley, about four miles north of the Tyne, in Northumberland. In those days the appearance of a Siberian bird in England was an event in the ornithological world; but four years later the mystery was increased by its rediscovery by Blyth near Calcutta. In 1845 Cabanis had an opportunity of examining two examples which had been caught near Berlin; and in the 'Journal für Ornithologie' for 1853, p. 81 (a *résumé* of which may be found in 'The Ibis' for 1862, p. 54), he attempted to gather up the scattered threads of the history of this bird. Unfortunately he gathered up too many; and for ten years three species were confused together under various names. Schlegel seems to have been the first to unravel the tangle to some extent (see 'Ibis,' 1863, p. 307); but the third species was not detached from the skein until 1878, when Brooks, the great authority on *Phylloscopi*, described *Reguloides humii* in 'Stray Feathers,' p. 131.

Meanwhile the interest attaching to the Yellow-browed Warbler had been increased tenfold. A second British-killed example, obtained within a mile of Cheltenham, on the 11th of October 1867, by Mr. J. T. White, was recorded in a letter from Gould in 'The Ibis' for 1869, p. 128, and is now in the collection of Sir John Harpur Crewe. Mysterious reports of its repeated occurrence in Heligoland were doubted by many ornithologists, until it was finally proved that it occurs on migration in small numbers every autumn, and occasionally in spring, on that wonderful island, and that since 1846 scarcely a year has passed without some having been seen and, frequently, shot. A few examples were obtained in other parts of Europe; and British oologists were so anxious to obtain eggs of this interesting British bird that Mr. Brooks made an expedition to Cashmere on purpose to discover them, returning home in triumph with abundance of spoil. The curious reader may find a most interesting account of Brooks's discoveries in Cashmere in 'The Ibis' for 1872, p. 24, most of which is copied in Dresser's 'Birds of Europe,' and extracts from which are also given by Newton in his edition of Yarrell's 'British Birds.' It was a great disappointment to Brooks, six years later, to be obliged to confess that the eggs he obtained were not those of the British species. By the discovery that the Cashmere bird was a new and undescribed species, his well-deserved success was deprived of half its brilliancy. The egg of the Yellow-browed Warbler again became a desideratum in every collection of British birds' eggs; and it was not until the summer of 1877 that an authentic egg of this species was obtained, when I had the good fortune to find a single nest not very far east of Brooks's locality, but more than two thousand miles further north.

Besides the information which I was able to record from personal observation in the valley of the Yenesay, I am fortunate in being able to add a most interesting account of the habits of this bird in Heligoland from the able pen of my friend Mr. Gaetke, whose long-promised work on the ornithology of Heligoland is so eagerly looked for by every lover of birds.

After mentioning the six or seven times that this bird has been procured in various parts of the continent and England, Gaetke goes on to say:—

" How does Heligoland compare with the rest of Europe with its half-dozen isolated instances of the appearance of this interesting little bird? Since I first made its acquaintance in 1846, and called the attention of our island sportsmen to its peculiarities, this little Warbler has been seen at least sixty times. Of this there can be no manner of doubt. Some twenty-five or twenty-six examples have been shot and most of them preserved. In addition to these sixty undoubted occurrences there have been at least twenty cases where boys (my highly-prized blowpipe-shooters) have assured me that they have seen a ' striped flysnapper;' but I have not made a note of it, not liking to record any observation about which there might be some doubt.

" Of the specimens which I have mounted, four are at present on my table; two (one of them the first shot on the island, on the 4th of October 1846) I presented to the late Colonel von Zittwitz, whose fine collection is now in the possession of the Leyden University; and two others, which belonged to my late friend Blasius, are now in the Brunswick Museum. The Coburg Museum has one example; and another is in the possession of the Hon. Percy Fielding in London. I sent Alfred Newton one finely marked bird and a second somewhat injured with the shot. I gave a couple of skins to my friend Seebohm, who, a day or two afterwards, shot a third specimen in my garden, on the 5th of October 1876; and, finally, a specimen has found its way into the fine collection of Mr. Benzon in Copenhagen. Besides these I have given away two or three examples, but do not at this moment remember to whom; and four or five were so badly shot that it was absolutely impossible to prepare them. To this number must be added a couple of birds which were mounted by the Heligolanders, and sold into private collections on the continent.

"The time of migration of this Warbler commences on Heligoland about the last week of September, and lasts until the end of October, and sometimes extends to the first week of November. Like almost all Siberian birds which visit our island, it is very rarely seen in spring. As certainly as it may be expected in autumn with favourable wind and weather, so certainly search for it in the spring would be vain. During a period of careful observation extending over thirty years, I have only twice met with it at this season—once on April 25th, and once on 25th May. The former was a male in splendid plumage; but, unfortunately, it was so much injured with the shot that I was not able to skin it.

"This bird chooses for its journey fine warm weather, with east or south-east wind. On the island it principally frequents the few willows in the gardens between the houses of the upper land. It hops about in these, as well as in the hawthorn, elder, and smaller shrubs, exactly like the Willow-Warbler and Chiffchaff, during which occupation it does not quiver its wings as the Goldcrests are in the constant habit of doing, even when they do not require to use them in flitting from branch to branch. It is also a less restless bird than the Goldcrests, and does not, like them, hop about seemingly without aim or purpose; but when it alights on a tree it begins at the lower branches and works away steadily up to the top searching for its insect food.

"The bird seldom utters its note, generally only when flying away. It sounds like *hyüf*, a little drawn out and softly spoken, slightly reminding one of the note of a Pipit. The note of the male is louder than that of the female. When surprised or alarmed the note is repeated two or three times in rapid succession and somewhat louder.

"In all its habits this bird has little affinity with the Goldcrests with their restless nervous movements, during which their notes are almost constantly repeated. Nor does it resemble them in the loose texture of their plumage, in their well-known style of nest, or colour of eggs, in each of which particulars it is a true Willow-Warbler. I suppose that it was only the small size and the bars across the wings which originally suggested the idea that this bird must be a *Regulus*. Observations on living birds do not justify such a conclusion in the least. The first birds which were observed here were noted down in my journal as '*Sylvia* (*Ficedula*) *bifasciata,'* a name coined on the spot for the unknown wanderer; and it never occurred to any of the old Heligoland sportsmen, nor even to one of the young blowpipe-shooters, to call it any thing else but the '*Barred Willow-Warbler.'*

"The custom of this bird to frequent the bushes in the small gardens close to the houses, where it is seldom safe to use a gun, is the reason why so few comparatively of the numerous examples which have been seen have been procured; and from the same custom arises the fact that so many which have been shot have not been preserved. When you have the chance of a safe shot, you frequently cannot get far enough off to avoid blowing the poor bird all to pieces. Besides this, it is by no means an easy bird to shoot. Few birds understand better how to conceal themselves, how always to keep sufficient foliage between themselves and the eyes of the eager observer to make a successful shot very difficult.

"The interest attaching to the visits of this little bird to our western island is so great that I have extracted the following references to its appearance from my notebook, as an opportunity of making such observations may never come again:—

"1846,	Oct.	4.	A male; the first seen (shot).
1847,	Nov.	9.	One seen.
1848,	Oct.	8.	A female shot.
,,	Nov.	9.	One seen.
1849,	Apr.	25.	A fine male shot.
,,	Sept.	20.	One seen.
,,	,,	25.	One seen.
1850,	Oct.	1.	One seen.
,,	,,	6.	A pair seen. Female shot.
,,	,,	13.	One seen.
,,	,,	17.	One seen.
1853,	Oct.	12.	One seen.
,,	,,	17.	A male shot.
1854,	Sept.	28.	One seen.
,,	,,	30.	One seen.
,,	Oct.	6.	A young bird shot.
1857,	Sept.	20.	One seen in my garden.
1858,	Sept.	22.	A bird badly shot.
,,	Oct.	12.	One seen in my garden.
1859,	Oct.	7.	A pair seen. One shot.
,,	,,	8.	A fine male shot.
,,	,,	13.	A pair shot. One fine old male. Both in my collection.
1861,	Oct.	10.	Three birds seen in Jacob Dehn's willows.
1863,	Oct.	9.	A male shot.

"1864, Oct. 4.	A pair. Both stuffed.
1865, Oct. 24.	A pair seen. Female shot.
1867, Sept. 19.	A pair shot.
„ Oct. 11.	One seen.
1869, Oct. 1.	One seen.
1870, Sept. 19.	A pair in my garden. Gun missed fire.
„ „ 20.	A male shot.
1873, Sept. 24.	A pair seen.
„ „ 25.	One shot.
„ „ 26.	A pair seen.
„ „ 30.	A male shot.
„ Oct. 16.	One seen.
1874, Oct. 10.	One seen.
„ „ 11.	One seen.
1875, Sept. 17.	A pair seen.
1876, May 25.	One seen in my garden.
„ Sept. 26.	One seen.
„ „ 29.	One seen.
„ „ 30.	One seen.
„ Oct. 3.	One seen in my garden.
„ „ 4.	A male seen in my garden.
„ „ 5.	A male shot by Seebohm in my garden.
„ „ 6.	One seen from the steps.
„ „ 7.	One seen in my garden.
„ „ 26.	One seen in my garden."

I first made the acquaintance of the Yellow-browed Warbler in Gaetke's garden in Heligoland. The general direction of the wind during the last week of September and the first week in October was east, varying from north-east to south-east. Birds were generally very abundant, many of them arctic species, such as Grey Plover, Little Stint, Little Bunting, Snow-Bunting, Knot, Sanderling, Red-spotted Bluethroat, Richards's Pipit, Brambling, &c. On the 26th we heard that a Yellow-browed Warbler had been seen; and on the 29th and 30th other examples were reported. On the 3rd both Mr. Sharpe and myself had an excellent view of the little bird in Gaetke's garden, and had a shot or two at it: but we were so nervous and excited in the presence of the Siberian stranger that we both missed it. On the 4th we had a stiff gale from the south-east; but the Yellow-browed Warbler was still there. On the 5th I succeeded in shooting it. It was a most active little bird, and was very partial to two trees, a willow and a hawthorn. Its note was a plaintive *weest*. Other examples were seen on the two following days.

Eight months afterwards I saw the Yellow-browed Warbler in its breeding-grounds on the Arctic circle, in the valley of the Yenesay. We had six feet of snow on the ground until the first of June. The sun was burning hot; but it generally froze hard in the shade. Very few migratory birds had arrived. The Snow-Buntings and the Mealy Redpoles (thick-billed seed-eating birds), and the Hen-Harrier, the Peregrine Falcon, the Merlin, and the Sparrow-Hawk (hook-billed Bunting- and Redpole-eating birds) were almost the only representatives of the many summer visitors which flock annually in countless thousands to the tundra to breed. Flocks of Geese and Swans had passed over, it is true, during the last half of May whenever a thaw had commenced; but the returning frost soon drove them back again, and to all intents and purposes it was midwinter. Summer, in league with the sun, had been fighting winter and the north wind for months, but was hopelessly beaten, until, on the 2nd of June, she formed an alliance with the south wind, and the great annual battle of the Yenesay—the great event of the year in these regions, like the rising of the Nile in Egypt—the battle between summer and winter began, and raged for about a fortnight. The snow melted down south so rapidly, and the great river rose so suddenly, that it began to flow up all its tributaries in the north. The ice broke up suddenly; thousands of acres were marched up stream and then marched back again. Ice-floes were driven against islands and promontories and piled up into broken masses, which froze together and came down in the shape of icebergs when the river rose high enough to float them. The brilliantly clear skies to which we had become accustomed changed to stormy clouds, followed by drizzling rain and mist. All nature seemed to share in the excitement. The revolution in the ice took place to the accompaniment of a perfect babel of birds. Above our heads we continually heard the *gag gag* of Geese and the harsh bark of Swans, as flock after flock hurried past us to the tundra. Wherever there was a little open water between the ice-floes and the pack-ice, crowds of Gulls were fishing as if they had not had a meal for a week; and their derisive laugh, as they quarrelled over their prey, seemed to mock our misfortunes as we struggled to save our half-wrecked ship: whilst ever and anon the wild weird cries of the Black-throated and Red-throated Divers, like the distant scream of tortured children, came from the creek opposite. Flocks of Ducks arrived; and Bramblings and Shore-Larks came in small parties.

The next day White Wagtails and Wheatears were seen running on the snow which covered the ice-floes; and on the 4th the willows and birches on the steep banks of the river, where the snow had melted, abounded with Warblers, amongst which I found the Willow-Warbler, the Siberian Chiffchaff, and the Yellow-browed Warbler.

It was very difficult to get about in the melting snow; but in the willows on the steep bank of the river little birds were feeding, industriously picking up insects on the naked branches, and sometimes making little flights in the air to catch a gnat upon the wing. Presently I heard a plaintive *weest*, which reminded me of Heligoland; and on shooting the bird I picked up a Yellow-browed Willow-Warbler, as I expected. There was quite a little party of these diminutive creatures; and they were so tame after their long journey that I watched them for some time hopping from twig to twig, diligently searching for food; I was often within four feet of one of them, and could distinctly see its white eye-stripe and the two bars across its wing.

For twelve days more the ice was still passing up and down the river, and migratory birds arrived at the rate of five new species a day. The snow melted rapidly; the river, three miles wide in this latitude, rose seventy feet in height; and wood-anemones, marsh-mallows, pansies, &c. were in full bloom.

At last the final march-past of the beaten winter forces, in their fourteen days' battle, took place; and for seven days more the ragtag and bobtail of the great Arctic army came straggling down the Koo-ray′-i-ka—worn and weather-beaten little icebergs, dirty ice-floes, that looked like floating mudbanks, and straggling pack-ice in the last stages of consumption. Winter was finally vanquished for the year; and the fragments of his beaten army were compelled to retreat to the triumphant music of thousands of song-birds, and amidst the waving of green leaves and the illumination of gay flowers of every hue.

But although the Yellow-browed Warbler was thus early in arriving, it did not appear to be in any hurry to commence breeding-operations. It soon became very common, frequenting almost exclusively the pine-forests on the banks of the Koo-ray′-i-ka and the Yen-e-say′. It was not particularly shy; and on more than one occasion I watched it for some time at a distance of only a few feet. On one occasion only I heard it make any attempt at a song; this was on the 21st of June. The bird was perched upon the extreme summit of a spruce, and stood shivering its wings, uttering a few plaintive notes, most of them poor and feeble variations on its call-note. On the 26th of June I was fortunate enough to find its nest. Curiously enough I was this time also in company with a Heligolander, Mr. Boiling, the ship-builder of Yen-e-saisk′. Late in the evening we were strolling through the forest between the Koo-ray′-i-ka and the Yen-e-say′. As we were walking along a little bird started up near us, and began most persistently to utter the well-known cry of the Yellow-browed Warbler. As it kept flying around us from tree to tree, we naturally came to the conclusion that it had a nest near. We searched for some time unsuccessfully, and then retired to a short distance, and sat down upon a tree-trunk to watch. The bird was very uneasy, but continually came back to a birch tree, from which it frequently made short flights towards the ground, as if it were anxious to return to its nest but dare not whilst we were in sight. This went on for about half an hour, when we came to the conclusion that the nest must be at the foot of the birch tree, and commenced a second search. In less than five minutes I found the nest, with six eggs. It was built in a slight tuft of grass, moss, and bilberries, semi-domed, exactly like the nest of our Willow-Warblers. It was composed of dry grass and moss, and lined with reindeer-hair. The eggs are pure white in ground-colour, spotted very thickly at the large end, in the form of an irregular zone, with reddish brown, and more sparingly on the remainder of the surface; some of the spots are underlying and paler, but not grey, and on one or two of the eggs they are confluent. They measure ·6 inch in length and ·45 inch in breadth. The markings are well defined, like those on the eggs of the Chiffchaff; but the colour is decidedly more like that of the Willow-Warbler's; but they approach much more closely the eggs of the Indian Willow-Warbler, *P. humii,* both in colour and size.

On account of the great interest attaching to the Yellow-browed Willow-Warbler, I append the following detailed description of its several plumages. The adult bird in spring plumage has the general colour of the upper parts olive-green, yellower on the rump and upper tail-coverts; a well-defined narrow greenish-yellow eye-stripe extends from the base of the bill to the nape; an irregular and very obscure greenish-yellow mesial line extends from the forehead to the nape; the feathers before the eye and behind the eye to the nape and the crown, and the nape between the mesial line and each eye-stripe, dark olive-green, a few still darker feathers emphasizing the eye-stripe on the nape; wing-coverts brown, the lesser wing-coverts with broad olive-green margins, the median and greater wing-coverts with broad well-defined greenish-yellow tips, forming two conspicuous bars across each wing; quills brown, all the secondaries and four or five of the primaries with conspicuous well-defined yellowish-white tips; outside webs of the quills margined with yellowish green, fading into yellowish white, and becoming broad and conspicuous on the terminal half of the innermost secondaries; quills emarginated as far as the sixth; tail-feathers brown, the outside webs edged with yellowish green, and the inside webs with a narrow greyish-white margin. The general colour of the underparts is white, suffused all over with traces of yellowish green; axillaries yellow; under wing-coverts and thighs greyish yellow. Bill dark brown, paler at the base of the under mandible; legs, feet, and claws brown; irides hazel.

In summer plumage nearly all the yellow and green with which both the upper and underparts were suffused has been lost by abrasion; the upper parts have faded into a grey-olive, traces only of the yellowish green remaining on the rump, upper tail-coverts, and the edges of the wing- and tail-feathers; all trace of yellow has gone from the eye-stripe and wing-bars, and nearly all from the underparts, leaving the colour greyish white; the conspicuous pale tips to the secondaries and some of the primaries have generally entirely disappeared; the lower wing-bar and the pale edges to the innermost secondaries have become very narrow; and traces only of the upper wing-bar are left. The autumn plumage is similar to that of spring, but more brilliant, the eye-stripes and the wing-bars yellower, and the upper parts a yellower green; the mesial line on the crown remains as obscure, and the underparts scarcely yellower. In winter the same amount of abrasion takes place as in summer; but the upper parts do not become so grey, and the eye-stripe and wing-bars retain a trace of yellow.

The Yellow-browed Warbler has several near allies. Two of these, which breed in the Himalayas, *P. erochroa* and *P. maculipennis*, may be at once distinguished by having the inner web of the two outside tail-feathers on each side pure white. A third, *P. proregulus*, breeding in the Himalayas and in the subalpine districts of South-eastern Siberia, differs from its northern representative in having a bright yellow rump. Two other species, *P. subviridis* and *P. humii*, also breeding in the Himalayas, but ranging westwards, the one into Gilgit, north of Cashmere, and the other into Turkestan, are more difficult to discriminate. They may generally be told by their wing-formula, the second primary being usually intermediate in length between the eighth and the ninth, whilst in the Yellow-browed Warbler it is usually between the sixth and seventh. Fresh-moulted examples of *P. humii* may be discriminated by their buff eye-stripe, of *P. subviridis* by the much yellower green of its upper and the greener tint of its underparts, and of both by their obscure upper wing-bar.

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Subfamily PARINÆ, OR TITS.

The Tits and their allies are a group of little birds, connected with the Turdinæ through the Accentors, and with the Sylviinæ through the Goldcrests. From both these subfamilies they are distinguished by their conical bills with no dental notch. From the former they are further distinguished by their scutellated tarsi, and from the latter by their single moult. Though they resemble the Laniinæ in many points, the deep tooth in the bill of the latter is a sufficient mark of distinction. It is a much more difficult matter to separate the Tits from the Crows. The latter appear to be a distinct group of birds, which, like the Warblers, moult in spring as well as in autumn. In other respects the Tits are remarkably like miniature Crows. Sharpe attempts to define the two groups by supposing that in the latter the chin-angle is produced before the line of the nostrils, whilst in the former it only reaches as far as the line of the anterior margin of the nasal suture. I confess I am quite unable to perceive any constant difference in this respect, and am obliged to take refuge in the unscientific character of size, and diagnose the Corvinæ as always bigger than Sparrows and the Parinæ as always less.

The Parinæ are almost cosmopolitan. They are found throughout the Palæarctic, Nearctic, and Oriental Regions, and more sparingly in the Neotropical, Æthiopian, and Australian Regions. They number about three hundred species and subspecies, of which about thirty are found on the continent of Europe. Of these, half have occurred in the British Islands, belonging to nine genera, which may be distinguished as follows:—

a. Bill short, not so long as the tarsus.
  *a*¹. Tail graduated, outside tail-feathers less than half the length of the longest.
    *a*². Bill yellow, the feathers on the side of the throat elongated into a moustache .... PANURUS.
    *b*². Bill black; no moustachial feathers.......................... ACREDULA.
  *b*¹. Tail nearly even.
    *c*². Nostrils covered with feathers.
      *a*³. Bill stout, the height at the nostrils about half the length .... PARUS.
      *b*³. Bill slender, the height at the nostrils about one eighth the length .... REGULUS.
    *d*². Nostrils bare.
      *c*³. Bastard primary more than half the length of the second .... TROGLODYTES.

        d^3. Bastard primary much less than half the length of the second .... Accentor.
b. Bill long, equal to or longer than the tarsus.
    c^1. Tail graduated, the feathers stiff and pointed .... Certhia.
    d^1. Tail nearly even.
        e^2. Bill slender, the height at the nostrils about one eighth of the length .... Tichodroma.
        f^2. Bill stout, the height at the nostrils about one fourth of the length .... Sitta.

Genus REGULUS.

Brisson appears to me to have had a better appreciation of the true affinities of the Goldcrests when he placed them in the genus *Parus* than Linnæus or Scopoli, the former of whom included the Goldcrests in his extensive genus *Motacilla,* whilst the latter removed them in company with the Warblers into his restricted genus *Sylvia.* In 1816 Koch separated them from the latter group of birds, and in his 'System der baierischen Zoologie,' i. p. 199, established the genus *Regulus* for their reception. Common sense demands that the Goldcrest be accepted as the type, because it is the *Motacilla regulus* of Linnæus.

The yellow or red mark on the crown is a sufficient generic distinction. The bill is short, slender, and straight. The nostrils are generally concealed by a single feather. The wings are rounded, with a small bastard primary; and the tail is slightly forked. The scutellæ on the tarsus are generally obsolete.

The geographical range of the genus appears to be precisely that of the genus *Certhia,* being the central and southern portions of the Palæartic and Nearctic Regions, extending into the extreme north of the Oriental and Neotropical Regions. This genus contains four or five species, some of them divisible into subspecies or varieties. Two of these species are found on the continent of Europe, one of which is a resident in our islands, and the other an irregular winter visitor. A third species is a resident in the island of Madeira.

The Goldcrests feed almost entirely on insects, and resemble the true Tits very closely in their habits. In the mode of construction of their nests, and in the colour and shape of their eggs, they approach more nearly the slightly aberrant genera *Acredula* and *Ægithalus.*

REGULUS CRISTATUS.

GOLDCREST.

(Plate 11.)

Parus calendula, *Briss. Orn.* iii. p. 580 (1760).
Motacilla regulus, *Linn. Syst. Nat.* i. p. 338 (1766).
Sylvia regulus, *Scop. Ann. I. Hist. Nat.* p. 161 (1769).
Regulus cristatus, *Koch, Syst. baier. Zool.* p. 199 (1816); **et auctorum plurimorum** —*Temminck, Gray, Bonaparte, Degland, Gerbe, Newton, Dresser, &c.*
Regulus aureocapillus, *Meyer, Taschenb.* p. 108 (1822).
Regulus flavicapillus, *Naum. Vög. Deutschl.* iii. p. 968 (1823).
Regulus auricapillus (*Meyer*), *Selby, Brit. Orn.* i. p. 229 (1833).
Regulus vulgaris, *Flem. fide Bonap. Consp.* i. p. 291 (1850).

The Golden-crested Wren, or Gold-crested Kinglet, or Goldcrest as it is often called, is very generally distributed throughout the British Islands. It is found at one season or another all over England in wooded districts; and there are few such localities in which it does not breed. Its history in Scotland is specially interesting; for it is one of those species that have within the last half-century or so considerably extended their range. According to Mr. Gray the bird appears to have been a very scarce one seventy years ago; but now it is widely dispersed and evidently on the increase. This is undoubtedly owing to the great improvements being rapidly made; for wherever the bare country has been planted with larches and firs, and extensive plantations made, they form a great attraction to this bird. Although the Goldcrest is found in Skye, Islay, and many parts of the Inner Hebrides, it does not frequent as yet the Outer Islands. It does not appear to breed in the Orkney or Shetland Islands, but is abundant there on the spring and autumn migrations; and at these periods it is occasionally found on the Faroes. Curiously enough the Goldcrest has not been recorded from the Channel Islands.

The Goldcrest, in a more or less modified form, is found throughout the Palæarctic Region; in Scandinavia as far north as the Arctic circle, but in North Russia only as far as Archangel in lat. 63°, and in the Ural Mountains and eastwards not extending above lat. 60°. The southern limit of its range in the east appears to be the Himalayas and China; in the west it is doubtful if it has occurred south of the Mediterranean. In the northern portions of its range it is more or less migratory, but in the south it is a resident.

The Goldcrests may be distinguished from the nearly allied Firecrests by having the space above the forehead separating the sides of the crest olive-brown instead of black. There appears to be only one species of Goldcrest, which is subject to considerable local variations, apparently only of subspecific value. In Japan a form having the nape greyish brown occurs (*R. cristatus*, var. *japonicus*). Examples from Asia Minor, Turkestan, and the Himalayas are intermediate. On the Azores a form is found having the olive-green nape of *R. cristatus*, but with a much larger bill, the culmen measuring ·5 inch instead of ·45 to ·4. I propose to call this form *Regulus cristatus*, var. *azoricus*. In comparing Goldcrests from different localities it is important that examples of the same sex and season should be selected for comparison. Females seem always to be slightly greyer than males; and newly-moulted birds of both sexes in autumn plumage resemble each other much more closely than breeding birds. In some localities the olive-green appears to undergo very little change throughout the year, whilst in others it changes on the nape and upper back almost into a slate-grey before the breeding-season is over.

The haunts of the Goldcrest are almost exclusively well-wooded districts; for although often seen in the barest of situations, where small bushes take the place of trees, it is at a time when the birds are migrating, and, tired with their long flight, are glad to settle anywhere to rest ere passing on again. It is found perhaps the most commonly in larch- and fir-plantations and in dense shrubberies; it also frequents gardens, orchards, and birch-copses, and in autumn and winter may often be seen in company with Tits exploring the tall hedges in the fields. The low shrill call-note is generally the first intimation of the presence of the bird; so low and shrill does it sound that it is often difficult to discover the direction from which it is proceeding, and after a close search some twig vibrating attracts the attention, and eventually the little creature appears in sight. It is not necessary to hide for fear of alarming it as it hangs on some drooping branch; for it is one of the most trustful of birds, and will often search the twigs and branches within arm's length of the observer without any show of fear. In its motions it very closely resembles a Tit or a Willow-Warbler, exploring the slender twigs, hanging from the drooping sprays, or going under the leaves in search of its food. One moment it will appear in the centre of the bush; the next it will be concealed from view near the roots, or daintily poised on the topmost twig. Then it passes on in unsteady flight to the next tree or bush, where the same motions are repeated, and the same low and piercing notes are given forth as it calls to its companions; for it is a very sociable little creature, except in the breeding-season, and often associates with Tits and Creepers. Perhaps the best place to study the habits of the Goldcrest is in fir-plantations. Perched, it may be, on the topmost twig of some wide-spreading fir it will sit and warble forth its notes, perhaps as it hangs suspended from a drooping spray, or not unfrequently as it glides like a little meteor through the foliage in chase of its mate. The song is not a very loud or long one, but is very melodious. Prominent amongst the songs of early spring are the notes of this delicate little species, which may be heard waking the stillness of the fir-plantations early in February, and long before the arrival of the Willow-Warblers which frequent the same breeding-grounds. These are the breezy uplands where pine-woods and fir-plantations abound, just on the borders of the moorlands; and in shrubberies where the dense and impenetrable yew-foliage affords the bird a requisite shelter. The nesting-site of the Goldcrest is generally in the branches of pines, firs, or drooping yew-twigs, usually the very extremity of the branch being selected where two or three twigs branch out, and where the nest is wafted to and fro by every breath of air. The end of a drooping branch of spruce is the site usually chosen. The nest is almost spherical, slung under the branches like a hammock, and made outwardly of the greenest moss, a few grass-stems, and hairs, and felted with spiders' webs and sometimes a few lichens, and then usually lined with a quantity of feathers. The foliage on the selected branches is carefully interwoven with the nest-materials, so that at a casual glance it appears nothing but a tangled mass of vegetation.

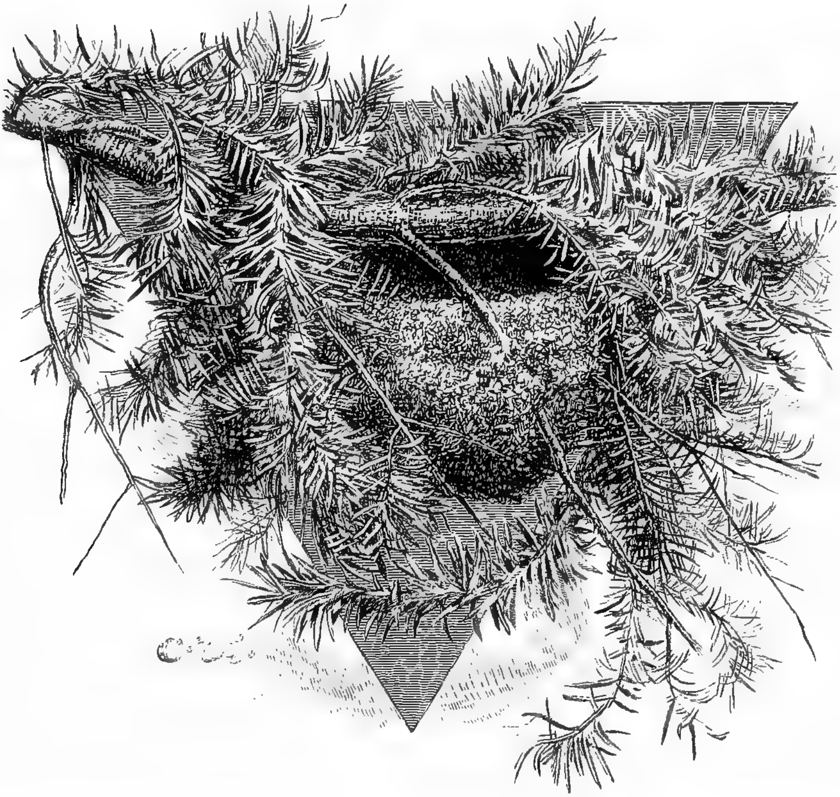
The eggs of the Goldcrest are from five to eight in number, sometimes as many as ten. Usually they are a most delicate reddish white speckled with tiny red markings, which often form a zone round the larger end of the egg. Some specimens are pure and spotless white, whilst others have the spots confluent and so numerous as to give the egg a uniform reddish or yellowish-brown appearance. They measure from ·6 to ·52 inch in length, and from ·43 to ·4 inch in breadth. The bird is a very close sitter; and the female will often only quit her home when the branch which sustains it is shaken violently; and even when disturbed she will generally perch some little distance away, but without betraying any great anxiety.

When the young are able to quit the nest they still keep in company with their parents, often forming a little party that keep together until the following spring. Dixon writes :—" It is in the balmy days of autumn that we have the best opportunity of studying the habits of the Goldcrest. It is then, and throughout the winter, that we see them in the hedgerows. The birds almost invariably keep in pairs, and flit from bush to bush, now in the centre, now on the topmost spray, then again diving into the leafy depths, the only sign of their presence being the trembling twigs which mark out their course. But it is in the birch-woods, when October's mellow month paints those lovely trees in yellow of the brightest dye, that we notice these charming little creatures in greatest abundance. Their low, sweet, but singularly piercing call-notes are heard in all directions. Sometimes the sunlight catches their fiery streak of plumage on the crown of the head, causing it to shine with metallic splendour like burnished gold. Now they hop from branch to branch; then, fluttering in the air, they catch a passing insect, and with feeble though piercing notes pass on to the next bush; for they seem to prefer the lower branches and bushes to the tops of the trees, though if repeatedly disturbed they take refuge in the tallest trees. Now they hang suspended from a long slender twig, their weight causing it to swing to and fro with graceful motion; and then on fluttering pinion they hover above some tempting seed-case or bud which promises to reward their search. Then they drop silently into the heather and explore its wiry branches in search of seeds and insects, or chase each other in sportive glee, darting like animated meteors through the branches. Now they alight in the gorse bushes, and hop from spray to spray, their lovely crests appearing like the golden blooms. As the males, conspicuous by their brighter crests, course over the twigs, they sometimes, autumn though it be, burst out into song, and utter a few notes of matchless melody."

The food of the Goldcrest consists of the insects found amongst buds, twigs, and leaves, and also those flying through the air, which it sometimes catches like a Flycatcher. Small seeds are also eaten, notably those of the birch and heather, also various small berries.

The migration of the Goldcrest is one of the most interesting portions of its history. How such a tiny little creature can sustain such long flights is wonderful. In Scotland the Goldcrest, Mr. Gray remarks, does not return by the same route in spring as it pursues in autumn; and this observant naturalist informs us that the birds make their appearance suddenly in April on their return journey. In Norfolk Mr. Stevenson has much to tell us of the annual wanderings of this charming little bird; and in his work on the birds of that county will be found several most interesting accounts of its migration. Even in many of our inland districts the migrations of the Goldcrest may be studied. Near Sheffield every autumn the resident birds are largely increased in numbers. Their line of migration is directly through some large birch copses in the Rivelin valley, about five miles to the west of the town; and it is worthy of remark that the same locality appears to be a favourite line of route with the Song-Thrush. The Goldcrests arrive there during October, in company with Tits of various species, especially the Coal Tit; and for about a week they literally swarm, the trees being alive with birds, and their peculiar notes fill the woods with a delicate melody. Few of these birds remain to winter in this locality; and in a week or so from the time of their arrival you may search every part of the woods without meeting with a trace of them. Mr. Cordeaux states that these little birds are so well known as migrants on the east coast of Yorkshire and Lincolnshire as to gain for themselves the name of "Woodcock-pilots." Every year they appear in flocks at Flamborough and Spurn, and are sometimes killed by flying against the lighthouses, attracted by the dazzling glare of the lantern. I have also seen great numbers on Heligoland on migration, where many fall victims to the blowpipe-shooters.

The general colour of the upper parts of the European form of the Goldcrest is olive-green, more or less suffused with yellow according to the season, being brightest in autumn; extending from each side of the forehead are two black streaks, which gradually widen and enclose a bright orange-yellow patch which covers the crown and forms a crest. The wings and tail are brown margined with yellowish green; the primary-coverts are dark brown; and the median and greater wing-coverts are tipped with white, forming two white bars across the wings. The general colour of the underparts is greyish brown. Bill very dark brown; legs, feet, and claws brown; irides hazel. The female has the colours less brilliant than the male, and the crest is lemon-yellow. The young in nestling plumage have no trace of black or yellow on the crown, the head being almost uniform with the back.



GOLDCREST'S NEST.

REGULUS IGNICAPILLUS.

FIRECREST.

(PLATE 11.)

Sylvia ignicapilla, *Brehm, fide Temm. Man. d'Orn.* i. p. 231 (1820).

Regulus ignicapillus (*Temm.*), *Meyer, Taschenb.* iii. p. 109 (1822); **et auctorum plurimorum**—*Naumann, Temminck, Gray, Bonaparte, Degland, Gerbe, Newton, Dresser, &c.*

Regulus pyrocephalus, *Brehm, Beitr. Vogelk.* ii. p. 130, pl. 1. fig. 1 (1822).

Regulus mystaceus, *Vieill. Faun. Franç.* p. 231 (1822, *partim*).

It is only within a comparatively recent period that the charming little Firecrest has been known to be an occasional visitor to Great Britain. It was first recorded as a British bird from a specimen killed by a cat in a garden near Cambridge in August 1832 (see Proc. Zool. Soc. 1832, p. 139). Four years afterwards another specimen was caught at sea off the Norfolk coast, and came into the possession of Mr. Hancock. A great many Firecrests have since been obtained on our shores; so that it may fairly be considered an accidental visitor on migration to the south and south-western portions of England. In Scotland it has only once occurred: a specimen was shot by Dr. Turnbull in Gladsmuir woods in the summer of 1848. In Ireland Thompson states that one has been observed in a garden at Tralee; but he does not appear to attach much importance to the evidence. It is a rare straggler to Guernsey; according to Dr. Saxby has been seen in the Shetlands in winter; and has once occurred on the Faroes.

The Fire-crested Wren has a very restricted range. Its northern limit appears to be the Baltic Provinces, where, however, it is very rare. To the west it breeds throughout Europe south of the Baltic, and is extremely abundant in Algeria, although it has not been recorded from North-eastern Africa. Eastwards its range does not apparently extend beyond the Crimea and Asia Minor.

The Firecrests are distinguished from the Goldcrests, to which they are very closely allied, by having the black band on the sides of the crest meeting across the forehead *. There appear to be four good species of Firecrests. The nearest ally to the European species is *R. maderensis*, which may easily be distinguished by the colour of its nape, which is dark grey instead of olive-green, by the size of the culmen, which measures ·5 instead of ·42 inch, and by the fact that the black of the lores does not extend behind the eye. This species appears to be confined to Madeira. The next nearest ally to the Common Firecrest is apparently confined to the Canary Islands. It has the olive-green nape of *R. ignicapillus* and the large bill of *R. maderensis*; but may be distinguished from either of them by having the lores greyish white as in *R. cristatus*. As these differences have apparently escaped the notice of naturalists, I propose to call the bird *Regulus teneriffæ*. The fourth species, *R. satrapa*, is confined to the Nearctic Region. It has the greyish-white lores of *R. teneriffæ*, but may easily be distinguished from that species by its very small bill, which only measures ·4 inch. The eastern form of this bird has the upper back greyish brown instead of olive-green; but the western form approaches the Palæarctic species in colour.

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* Dresser in his 'Birds of Europe' describes this feature correctly, but by some accident omits it in his figure of the male Firecrest.

The haunts of the Firecrest are very similar to those of the Goldcrest; and the habits of the two birds bear great resemblance. The Firecrest is a very common bird in the pine-woods near Arcachon; and wherever you come across a party of Crested Tits or Coal Tits they are generally accompanied by either the Goldcrest or the Firecrest, whether you happen to be in the pine forests or in the gardens of the villas where Scotch firs are the prevailing trees. Their presence is at once betrayed by their soft notes, a monotonous *zit-zit*, which is continually uttered as they are busily employed feeding on insects under the leaves of the overhanging trees, and becomes a rapid *z-z-z-zit* as they chase each other from tree to tree, or fly off in alarm at your movements. If you remain perfectly still they will sometimes come and feed close to you, occasionally two or three of them within a few feet of your head. It is very curious then to watch their movements. They twist in and out among the slender twigs, sometimes with head down and sometimes with feet up; but by far the most curious part of the performance is when they come to the end of the twig and examine the under surface of the leaves at its extremity. They have nothing to stand upon; so they flutter more like bees than birds from leaf to leaf, their little wings beating as hard as they can go, indeed beating so fast that they look transparent, their bodies all the time being nearly perpendicular. Of course it is only on large-leaved oaks, and the shrubs that form the underwood in the garden, that you can examine them closely. In the pine forest, where all the branches for twenty feet are broken off for fuel, you require a glass to see them well. The Firecrest seems a much more restless bird than the Goldcrest, and does not apparently examine each tree so patiently. It seems to be more in a hurry, and to prefer the pines to the underwood.

Dixon, when in Algeria, made the following notes respecting this bird:—"The Firecrest is a fairly common bird in some parts of the Djebel Aurès, both in the evergreen-oak forests above Lambessa and the cedar forests south-west of Batna. These forests clothe the steep mountain-sides, which are here and there split into romantic ravines, on the sides of which you hear the harsh *cawee cawee* of the Barbary Partridge as it nestles amongst the stones and scrub. Ever and anon the soft note of the Hoopoe, or the cry of Levaillant's Woodpecker, or of the Algerian Jay falls upon the ear; whilst in the bushes near at hand may be seen the charming little Moussier's Buschat, the Algerian Chaffinch, and, more rarely, a gorgeous Roller. The trees are full of life. Here, in close company with the rare Algerian Coal Tit, the Firecrest is very common. It is seen in the tall cedar trees, and is restless and busy amongst the branches fifty feet above, exploring all the twigs in search of its favourite food. The Firecrest is also almost as common in the evergreen-oak forests, searching the lower branches all amongst the lichens and tree-moss for insects; and every now and then its brilliant crest glistens conspicuously in the sunlight. Its note sounds shriller to me than a Goldcrest's; but I think it was quite as familiar and trustful as that other little favourite bird of mine. In its motions it puts you in mind of the Willow-Wrens; and when, as I have sometimes seen it, hanging with one leg from a drooping bough, picking out the insects from a bud, it looks precisely like a Tit. Although we were in these forests in May, the birds did not seem to have begun to breed."

The nest of the Firecrest does not differ from that of the Goldcrest. As in that species, it is suspended under the drooping branches of a fir tree, usually near the extremity of the branch, amongst the twigs of which it is artfully concealed, these twigs being also interwoven with the sides of the nest. It is made chiefly of the greenest moss, felted together with spider's webs and studded with lichens. Inside it is lined with a profusion of feathers. When placed amongst branches thickly clothed with lichens and tree-moss, this material almost entirely forms the outside of the nest; for, like the Chaffinch and the Long-tailed Tit, the Firecrest imitates most closely the surroundings of its home, and in this fact doubtless its safety rests. The eggs of the Firecrest are as numerous as those of the Goldcrest, and are usually nine or ten in number, sometimes less, and, in rare instances, more. They may always be distinguished from the eggs of the Goldcrest by their much redder tinge. They are reddish white in ground-colour, richly marbled and speckled over the entire surface with brownish red. Some specimens are only so richly coloured on the larger end of the egg; but usually the whole surface is covered. On some specimens a few minute streaks of brown are found. They measure from ·56 to ·5 inch in length and from ·45 to ·4 inch in breadth. It is not known that the Firecrest has ever bred in the British Islands.

The food of the Firecrest is similar to that of the Goldcrest—small insects, little seeds, and probably berries, as in the allied species. The Firecrest, it would appear, performs its annual migrations in company with its close congener the Goldcrest to a large extent; and the specimens that have been obtained on our shores (usually at the migration period) have in many instances been in company with parties of those birds.

The Firecrest has the general colour of the upper parts olive-green, brighter on the sides of the neck below the nape; the forehead at the base of the bill is buffish white, above which is a black line extending along each side of the crest, which is rich orange-yellow in the centre and lemon-yellow on the sides; from the gape, extending through the eye, is another dusky black streak; and another and less distinct moustachial streak passes from the base of the bill downwards; the wings and tail are dark brown, margined with yellowish green; and the greater and median wing-coverts are tipped with white, forming two white bars across the wings; the primary-coverts are dark brown; the ear-coverts are slate-grey. The general colour of the underparts is dull buffish white. Bill very dark brown; legs, feet, and claws dark brown; irides hazel. The female only differs from the male in having the crest much paler and the colours generally less brilliant. Young birds do not show any trace of the yellow crest until after the first moult, and have the crown uniform in colour with the rest of the upper parts; but the black stripes on the head are similar to those of the adult birds, though sometimes less distinct*.

The Ruby-crowned Wren, *Regulus calendula*, of North America has been included in the British fauna by several writers; but the evidence is very unsatisfactory. The specimen upon which its claim to be a "British" bird rests is said to have been shot in the summer of 1852 by Dr. Dewar in Kenmore wood, near Loch Lomond. It was not until six years afterwards that the bird was identified by Dr. Dewar and exhibited by Mr. Gray at a meeting of the Natural-History Society of Glasgow; and it is therefore extremely probable that during such a lapse of time an American skin had unwittingly found its way into the drawer in which Dr. Dewar placed the Goldcrests which he shot on the day of its reputed capture. The bird differs so strikingly from its allies, the Goldcrest and the Firecrest, that it is impossible to conceive how it could have been overlooked for the space of six years! The bird has been known to visit Greenland (see 'Ibis,' 1861, p. 5), thus making its accidental occurrence in Scotland more probable; but until more conclusive evidence is obtained it is extremely unadvisable to admit it into our fauna. It may easily be distinguished from the Goldcrest and the Firecrest by its ruby-coloured crest, by the absence of both the white and the black eye-stripes, and by having the nostrils covered with feathers instead of a single feather. The bird killed in Durham, and which has been referred to the American *Regulus calendula* by Bree, Gray, and others, is nothing but the Firecrest (*R. ignicapillus*).

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* Dresser (or his careless translator) states that Naumann describes the young bird just fledged as lacking the black markings on the crown. Naumann does nothing of the sort, but especially states that the young of the Firecrest may be easily distinguished from the young of the Goldcrest by their possessing the whitish and blackish eye-stripes.

Genus PARUS.

The genus *Parus* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 341. As Koch placed the Great Tit first upon his list, and as it is also the first species mentioned in Brisson's genus *Parus*, it has been universally recognized as the type, although the evidence for its being so is not very satisfactory. The Tits included in the present genus may be distinguished from the birds in allied genera (*Panurus, Acredula*) by their nearly even and short tails. The wing is typical, and the bastard primary is small. The nostrils are covered with feathers; the bill is short and stout; the tarsus is scutellated; and the feet are large and strong.

The birds in the present genus are almost exclusively confined to the northern hemisphere. They are principally found throughout the Palæarctic, Nearctic, and Oriental Regions, only a few species occurring in the Æthiopian Region. This genus contains upwards of sixty species and subspecies, of which only twelve are found on the continent of Europe, four of which are residents in our islands, and one an accidental visitor.

The Tits are found in well-timbered districts, in gardens, woods, groves, and orchards. They are restless, active birds, incessantly in motion, searching the branches and twigs in every conceivable attitude for their food. Their call-notes are usually harsh; but some are not at all unmusical, and, rapidly repeated, form their only attempt at song. Their food consists of insects, small seeds, and, more rarely, flesh and other refuse found near houses. Their nests are all either loosely made in holes of trees and walls, or suspended from the branches, artfully woven, and domed, where the sitting bird is hid entirely from view. Their eggs are numerous, from five to twelve in number, pure white in ground-colour, spotted with reddish brown or dark brown, but sometimes spotless.

PARUS MAJOR.

GREAT TIT.

(Plate 9.)

Parus major, *Briss. Orn.* iii. p. 539 (1760); *Linn. Syst. Nat.* i. p. 341 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Bechstein, Naumann, Temminck, Gray, Bonaparte, Degland, Gerbe, Newton, Dresser, &c.*
Parus fringillago, *Pall. Zoogr. Rosso-Asiat.* i. p. 555 (1826).
Parus robustus, *Brehm, Vög. Deutschl.* p. 461 (1831).

The Great Tit, one of the largest species of its genus, is a common bird throughout the wooded portions of Great Britain, occasionally straggling as far north as the Shetlands, but appearing never to visit the Outer Hebrides. Gray states that in Scotland it becomes less frequent north of Argyllshire. It is generally distributed throughout Ireland in suitable localities.

The Great Tit appears to be found throughout the Palæarctic region, from the British Islands to the Pacific. In Norway, under the influence of the gulf-stream, it ranges as far north as the arctic circle (lat. 66½°). In West Russia it has not been recorded north of lat. 64°. In the valley of the Obb, Finsch and Brehm did not observe it north of lat. 62°; whilst in the valley of the Yenesay I did not find it north of lat. 58°. On the Pacific coast, Middendorff did not obtain it further north than lat. 55°. It extends in the west as far south as the Canary Islands, Algeria, Palestine, and Persia, and in the east as far as North Turkestan and the Amoor. In Mongolia, China, and Japan its place is taken by a nearly allied but apparently quite distinct species, *P. minor*, which is on an average a slightly smaller bird, and has the yellow of the underparts replaced by buffish white. In examples from South China the upper back is greyer; and every intermediate form between *P. minor* and *P. cinereus* of the plains of India occurs there, in which latter species, in the adult bird, all traces of green have disappeared from the back, leaving it slate-grey. In the mountains of India, Ceylon, and Java a large race of *P. cinereus* occurs, *P. atriceps*, in which the black on the belly and centre tail-feathers is somewhat more developed. In Turkestan a pale form of *P. atriceps* occurs, *P. bokarensis*, differing also in having the tail considerably more rounded. All these tropical and semitropical forms appear to be specifically distinct from *P. major*, but are probably only subspecifically distinct from each other. The most remarkable fact connected with the geographical distribution of the Great Tit is that, whilst its range differs from those of the Blue Tit and the Crested Tit, which are confined to Europe, and agrees with those of the Marsh-Tit and the Coal Tit, which are also found across Asia, the Great Tit differs from the two latter in the following remarkable particulars. First, it scarcely varies at all in colour or dimensions, whilst the two latter species may be subdivided into numerous local races, differing slightly from each other both in colour and dimensions. Second, it appears to be specifically distinct from its tropical and semitropical allies, which in the other species are more or less connected by intermediate forms. And third, the range of the tropical form of the Great Tit extends much further south than that of the tropical forms of the other species.

The Great Tit is rarely seen except in well-wooded or cultivated districts. Plantations and shrubberies, where deciduous trees and dense underwood occur, in addition to evergreens, are its favourite haunts; but it also frequents open woods, copses, orchards, and gardens. Like the other Tits, the Great Tit may be tempted close to the houses in winter by hanging out a bone or a lump of suet, or even a tallow candle, upon which it feeds eagerly, and where its habits may be watched at leisure. It is a lively bird; and the attitudes it assumes in searching for its food are almost endless. The best time to observe it is in winter, when the trees and shrubs are bare, and when it is often found in little parties—although in this respect this bird is not perhaps quite so gregarious as its congeners. If you wander out into the fields and woods on a winter's morning, or even stroll into the orchard, the sharp unmistakable note of the "Oxeye," as it is often called, will most probably be the first sign of bird-life you notice. The bird itself is in some bare and leafless tree, sprightly and active in spite of the cold and snow, searching for its food amongst the buds and twigs. You may notice how deftly it poises upon the extremity of a dead limb, and may hear its little taps at the bark, as it dislodges some insect from the crevices. But it is ever in motion; and after a moment's pause it probably flits with undulating flight to another tree, where its actions may possibly remind you of those of the Creeper; for it clings to the bark on the trunk, though it does not run up it as the latter bird is in the habit of doing. Ever and anon its sharp notes may be heard; and its restless nature soon sends it to another tree, perhaps a birch. In addition to the insects which it finds on the leaves, the bird also picks out the small seeds of this graceful tree, and very often to obtain them hangs suspended from a drooping spray, all the time swaying backwards and forwards like a pendulum. Now it is head downward; a moment after it is upright; then clinging to the twigs with its back towards the ground and its head thrust forward. In a word, it assumes every attitude that it is possible for a bird to take, and seems equally at home in them all. No wonder it is a great favourite with the lover of bird-life. By the gardener, however, it is too often considered an enemy; for its visits to the fruit-trees in spring often lead to the destruction of many promising buds. But the

"Oxeye" has an object in searching these buds; for lurking within them are grubs which might eventually prove quite as injurious, not only to the bud which it pulls to pieces, but to many others on the same tree. The Great Tit is not unfrequently seen on the ground under the trees, where no doubt it finds a plentiful supply of insects amongst the fallen leaves.

The site of the Great Tit's nest varies considerably. Holes in walls and decaying timber are favourite places; so, too, are the deserted nests of Crows and Magpies, as also amongst the sticks in the foundation of Rooks' nests. Most curious situations are sometimes chosen by this bird in which to build its nest. Like the Robin, it appears to have the same weakness for a flower-pot; or it will sometimes select an old pump. Stevenson, in his 'Birds of Norfolk,' i. p. 141, gives a long and interesting account of a nest of this bird in a cupboard; and Dixon has known it build in a hole in the ground. The Great Tit has also been known to make a hole for itself in a tree-trunk by picking out the rotten wood with its beak; and according to Montagu the eggs are sometimes laid on the powdered wood at the bottom of the hole without any nest whatever. The nests of the Great Tit may be divided into two classes. First we have those nests which are placed in covered sites, as holes in walls or trees; and, secondly, those which are built in the deserted nests of other birds or amongst the sticks of Rooks' nests. If we examine nests from these several situations, we find that they differ considerably. Those from covered sites are open and very loosely put together; whilst those from the open sites are domed like a Wren's and comparatively well made. Dixon has taken a nest of this latter variety from inside an old Magpie's nest. It resembled a ball of moss, and was so cunningly woven as to render it necessary to pull it to pieces ere the eggs could be obtained. This is an analogous case to the two very distinct types of nest of the common House-Sparrow. The nest of the Great Tit is made of dry grass, a quantity of moss, which is thickly interwoven with hairs and wool, sometimes a few withered leaves, and is generally lined with a thick bed of feathers.

The eggs of the Great Tit are from five to eleven in number, usually seven or eight, and vary somewhat in size and markings. They are pure white in colour, sometimes with a faint yellowish tinge, spotted and blotched with light reddish brown. Some specimens are far more richly marked than others, the colour being distributed in bold blotches; on others it consists of mere specks, sometimes partly confluent and forming a zone round the larger end of the egg. They measure from ·8 to ·65 inch in length, and from ·55 to ·5 inch in breadth.

It is absolutely impossible to distinguish the eggs of the Great Tit from those of the other Tits except by their size; and even then small varieties of its eggs are undistinguishable from certain large varieties of the others, or of those of the Creeper. In the latter case the nest and its site must be taken into consideration, if a view of the parent birds cannot possibly be obtained. From small eggs of the Nuthatch the eggs of the Great Tit are very difficult to be distinguished; the only sure guide is to see the parents belonging to a nest ere taking the eggs.

In many instances the Great Tit rears two broods in the year. The actions of the parent birds when the nest is approached are very bold. They will endeavour to repel your intrusion by angry cries; and should the sitting bird be caught on the nest, as it most easily can be, it will hiss and bite vigorously without any show of fear. The young birds are almost exclusively fed on caterpillars and grubs, which the old birds obtain from the neighbouring trees and bushes.

The food of the Great Tit is composed of insects of various kinds. It also eats small seeds, which it often shells by placing them in a crevice and hammering them with its beak like a Nuthatch. Like the Crows, it is almost omnivorous, and is very fond of picking a bone. Dixon has known fields, which had been manured with refuse from slaughterhouses, frequented by large numbers of Tits, prominent amongst them being the present species, which fed on scraps of flesh on the bones and even on entrails. It was a curious sight to see such tree-haunting birds hopping about on the ground and feeding in company with Starlings and Rooks. The Great Tit also feeds on fruit, as may often be noted in autumn. Its young, however, are almost entirely fed on small caterpillars and grubs. It is also said sometimes to kill small birds by repeated blows on the head, and then to eat their brains; but such instances are certainly far from common.

The notes of this bird are varied; and in spring it is often heard to utter a double note, *peek-ur*, *peek-ur*, very much like the monotonous sound of a rusty axle of a cart or wheelbarrow creeking with every revolution of the wheel. Its other notes are a *si*, *si*, *si*, or a metallic *ping*, *ping*, and a harsh spluttering *chur-r-r-r-si*. Its only attempt at song is heard in spring, and consists of a loud but not unmusical note or two. The flight of the Great Tit is undulating, uncertain at times, and performed with quick beats of the wings with occasional long pauses. Although gifted with no small powers of wing, it rarely flies for long distances, but goes in little jerking flights from tree to tree.

In autumn our resident Great Tits undoubtedly receive accessions to their numbers by migrants. From what may be gathered from the annual reports on migration made by numerous observers on our lighthouses and light-ships, "Titmice" appear sometimes as early as the first week in August; but notes specially referring to the present species on the east coast of England show that the second week in October is an average date for their appearance, as is the case with the Goldcrest. It would also appear that these little travellers sometimes choose to cross the sea by night; and many dash against our lighthouses, attracted possibly by the glare of the lamps.

The Great Tit has the forehead, crown, sides of the neck, and throat rich glossy black with a steel-blue lustre; the cheeks, ear-coverts, and a small patch on the nape are white; the upper back is yellowish green, gradually merging into bluish grey on the lower back and upper tail-coverts. The wing-coverts are pale blue, the greater ones tipped with white, forming a bar across the wing; the primaries are dark brown, margined with greyish white on the terminal half, and slate-grey on the basal half; the secondaries are margined on the basal half of the outer web with yellow, whiter on the terminal half; the tail is dull black washed with bluish grey, the outside feather on each side white on the outer web and also on the inner web at the tip; the next feather tipped with white. The underparts below the throat are bright greenish yellow, with a broad black line from the black on the throat down to the vent; the under tail-coverts are white varied with black. Bill black; legs and feet lead-grey; irides dark brown. The female very closely resembles the male in colour, but is not quite so brilliant, and the black line on the underparts is not so broad. Young birds are duller in colour than their parents, and the white parts are yellowish. The Great Tit may be distinguished from all the other British species by its size (wing 2·9 inch), and by the broad streak of black on the underparts from the chin to the vent.

PARUS CÆRULEUS.

BLUE TIT.

(PLATE 9.)

Parus cæruleus, *Briss. Orn.* iii. p. 544 (1760); *Linn. Syst. Nat.* i. p. 341 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Bechstein, Naumann, Temminck, Gray, (Bonaparte), Degland, Gerbe, Newton, Dresser,* &c.
Cyanistes cæruleus (*Linn.*), *Kaup. Natürl. Syst.* p. 99 (1829).
Parus coerulescens (*Linn.*), *Brehm, Vög. Deutschl.* p. 463 (1831).

The Blue Tit is one of the most widely spread and certainly one of the best-known of our native birds. It is found in all suitable districts throughout the British Islands, from the Channel Islands in the south to the Orkneys and the Shetlands in the extreme north, where, however, it is a very rare straggler, but one specimen having been obtained in the first-mentioned of the latter two groups of islands.

The geographical distribution of the Blue Tit is very restricted; and consequently the bird does not present any of the differences which we shall find in treating of some of the other species of this group. Each species of Blue Tit appears to be subject to very little variation, and to be separated from its congeners by a hard and fast line. The Blue Tit is distributed over the whole of temperate and Southern Europe, as far east as the Ural Mountains and the Caucasus. In Norway, owing to the comparative mildness of the climate, it is found as far north as lat. 64°; but in Russia it has not yet been obtained further north than lat. 61°. Meves states that it is said to have been found at Archangel; but neither Hencke, Piottuch, Harvie-Brown, nor myself met with it there. Its nearest ally is *P. persicus,* from Persia, which differs in being much paler in colour and in having broader white margins to the greater wing-coverts. In Tunis, Algeria, and Morocco the Blue Tit is represented by *P. ultramarinus,* a well marked species, differing principally in having the back slate-grey instead of yellowish green, and the black on the throat more developed. In the Canary Islands *P. ultramarinus* is replaced by *P. teneriffæ,* an island form, only differing from its ally of the mainland by the absence of the pale tips to the greater wing-coverts, the very indistinct tips to the innermost secondaries (which in its ally are broad and conspicuous), and by having a slightly longer tail. The next nearest ally of the Blue Tit is *P. pleskii,* from Central Russia, a blue-backed pale form with the portions of the underparts that are yellow in the Blue Tit pure white, with the exception of a pale yellow spot on the breast. Another European species found in Russia and Siberia is the Azure Tit, *P. cyanus,* somewhat similar to the last mentioned, but still paler blue on the back, with a nearly white head, without the black throat and gorget, without the yellow on the breast, and with the white on the outside tail-feathers very largely developed. *P. cyanus* is represented in Turkestan by a very nearly allied bird, *P. flavipectus,* which only differs from it in being slightly darker on the upper parts and in having the breast lemon-yellow.

The Blue Tit is one of the most familiar and best-known of our smaller birds. All the Tits are interesting little creatures, and most grotesque in the attitudes they assume; yet none surpass in these respects the pert little "Bluecap." There is something exceedingly droll about a Blue Tit; he is such a *knowing* pert little fellow that he engages the attention at once. He is not shy, and will allow the observer to watch his actions at a few paces. With what patient perseverance he searches for his food, examining every little twig and bud in his way! how deftly he clings to the extremity of the twigs, pecking vigorously at the large buds, shelling off their cases in eager search for the grub concealed within! How merry are his notes of exultation as his search is rewarded, and he pops quickly off to another twig where the same performance may be renewed! He is a noisy little creature, ever restless, and, when not engaged in picking out the insects from the buds and twigs, continually signalling to his companions in a lively series of call-notes.

His actions in spring cause the gardener some anxiety for his fruit-trees. In the search for insects many promising buds are injured; but when we consider the number of grubs destroyed, his good services must be set against the trifling damage. In autumn the habits of the Blue Tit are to a great extent changed. During the breeding-season his notes are rarely heard or only at long intervals; and at this time of the year he ceases to be gregarious. But when the anxious cares of rearing their brood are over, the birds roam about the fields, woods, and gardens in small parties; they seem to be in the height of their enjoyment; and the brood and their parents make the trees resound with their cheerful notes, and the twigs seem full of life as the gay little creatures poise and twist and turn amongst the leaves. Throughout the autumn the birds will keep together, and sometimes join parties of Coal Tits or even a stray Creeper. In winter the Blue Tit is often to be seen in places which at other times of the year he appears to shun—for example the corn-stacks, to the sides of which he will cling in company with Sparrows—or the open fields, where he may often be seen picking the bones thrown on the land with the manure. At this season he may sometimes be seen searching walls for insects by clinging to them, and often picking out bits of plaster to get at his prey; or he will not unfrequently visit the heaps of old wood in the farmyard in search of any thing edible.

In their wanderings the Blue Tits visit almost every variety of scene, except, of course, the most barren and treeless wastes. The orchard trees are searched just as closely as the tall elms, oaks, and beeches in the depths of the forest; the birch copses have an equal charm with the hedgerows, the garden, or the fir-plantations; whilst in the dense shrubberies, especially at nightfall, Blue Tits are almost sure to be found, repairing thither, after exploring the deciduous trees in the neighbourhood, to roost amongst the perennial foliage of the laurel, the yew, or the ivy. At dusk they become exceedingly garrulous; and as the little party wander about through the dense cover they seem to disturb all the birds they meet with, if we may judge from the number of bird-notes one hears from all parts of the cover, as the noisy Tits wander through it. The Blue Tit usually roosts amongst ivy or in yew trees; but sometimes a whole party will fix upon the warm sheltered side of a haystack in which to spend the night.

The Blue Tit is almost omnivorous. It will eat or endeavour to eat almost any thing, from a hard pear or even a turnip to a currant or a cherry, from a grain of corn to the tiny seeds of the chickweed or the dock. Many kinds of insects are eaten, grubs, caterpillars, beetles; and a small butterfly or a moth is often chased on the wing by these birds. In winter a bone hung out in the garden is sure to attract their attention. The Blue Tit is also very fond of pecking at fruit, very often being seen in winter on a pear or an apple that has still remained on the trees.

The flight of the Blue Tit is performed with rapid beats of the wings, and is undulating and uncertain. Like its congeners, it rarely flies for long distances, and its movements in the air are usually confined to passing from one tree to another; and very often it will go the whole length of a wood without once engaging in a protracted flight. Its call-notes are harsh and rapidly repeated, resembling the syllables *chicka-chicka chee-chee-chee,* varied with a harsh churring sound almost like a hiss. It has no song beyond a simple *si, si, si.*

The Blue Tit seldom builds its nest before the first week in May. A little earlier the birds may be often seen pulling out bits of plaster from walls, and, in fact, squeezing themselves into all kinds of nooks and crannies likely or unlikely to afford them a site for their home. The Blue Tit's breeding-grounds are in well-wooded districts, in gardens and orchards, near houses, in the holes of outhouses, and in walls. A favourite place for the nest is in an old gate-post or a pump; and the bird will return each year to the same spot for the purpose of rearing its young, should it be left unmolested. Mr. C. Bygrave Wharton has recorded two instances of this bird nesting in holes in the ground ('Zoologist,' 1874, p. 4034, and 1879, p. 219). Many strange situations have been chosen by this bird for nesting-sites. Scarcely any of the numberless biographies of the Blue Tit fail to give us fresh instances of its peculiar choice. As soon as the site is selected the nest is begun. Like all other nests built in holes, it is but a poorly made structure, so loosely put together that it is difficult to remove it without breaking it to pieces. The materials usually selected are moss and dry grass; and it is lined with wool, hair, and great quantities of feathers. Many nests of the Blue Tit contain as many as twelve eggs; in other and more usual instances the number varies from five to eight; and cases have been recorded where as many as twenty eggs have been said to have been found in one nest; but these stories require verification. The eggs are very similar in shape to those of the Great Tit, and are white in ground-colour, speckled, as a rule, rather faintly with light red; they measure from ·7 to ·55 inch in length and from ·5 to ·42 inch in breadth. Both the male and female Blue Tit assist in hatching the eggs; and you can rarely drive the sitting bird from its charge. Bravely it remains upon it, and, by hissing, biting, and puffing up its plumage, endeavours to defend its little home. How often does the enthusiastic oologist start back in alarm as the bird utters a sound like the warning hiss of a snake, fearful that instead of eggs the hole in which he is about to thrust his hand contains some poisonous reptile! Even when you take the bird in your hand its courage is none the less, and, erecting its tiny crest, it will bite most viciously, and its little black eyes sparkle again with anger. So attached is the little creature to its hole that no small amount of annoyance or disturbance will cause it to forsake, and many indeed are the instances on record of its attachment to, the site of its choice. The nests of this bird are sometimes found entombed in branches and trunks, where the bark has grown over, and the natural growth of the tree during the course of years has closed the aperture.

The number of our resident birds appears to be increased in autumn; for the Blue Tit is included in several of the reports of the arrival of migratory birds on our shores; and on the interesting island of Heligoland it is yearly taken as it passes over in its annual wanderings.

The Blue Tit is a very handsome little bird. It has a broad white line extending from the forehead over the eyes and completely encircling the crown, which is azure-blue; another and narrower line of dark blue extends from the base of the bill through and behind the eye, where it meets another and broader band of the same colour, which curves downwards behind the ears and meets on the throat; the cheeks and ear-coverts are white; the nape is bluish white, and the back and upper tail-coverts are yellowish green; the wings and tail are blue, the greater wing-coverts being tipped with white. The general colour of the underparts, from below the throat, is greenish yellow, paler on the centre of the belly, and with an obscure bluish-black streak on the breast. Bill dusky horn-colour; legs, feet, and claws lead-colour; irides dark brown. The female scarcely differs from the male; but her colours are a little less brilliant. Young birds have similar markings to their parents; but their plumage is yellower. The Blue Tit may be readily distinguished from all its British congeners by its beautiful azure-blue crown.

PARUS ATER AND PARUS BRITANNICUS.

EUROPEAN COAL TIT and BRITISH COAL TIT.

(PLATE 9.)

Of the various subspecific forms of the Coal Tit, two at least are found in our islands, of which the synonymy is as follows :—

PARUS ATER.

EUROPEAN COAL TIT.

Parus atricapillus, *Briss. Orn.* iii. p. 551 (1760).
Parus ater, *Linn. Syst. Nat.* i. p. 341 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Bechstein, Naumann, Temminck, Gray, Bonaparte, Degland, Gerbe, Newton, Dresser*, &c.
Parus carbonarius, *Pallas, Zoogr. Rosso-Asiat.* i. p. 556 (1826).
Poecile ater (*Linn.*), *Kaup, Natürl. Syst.* p. 114 (1829).

PARUS BRITANNICUS.

BRITISH COAL TIT.

Parus britannicus, *Sharpe & Dresser, Ann. Nat. Hist.* (series 4) viii. p. 437 (1871).
Parus ater, *Linn. apud Newton*, &c.

The Coal Tit is one of those species which has extended its range within our islands during comparatively recent times. Early writers state that this bird was far rarer than the Marsh-Tit; now it is certainly the reverse, although no perceptible decrease in the numbers of that species has been noticed. The Coal Tit is found pretty generally throughout the British Islands in all suitable localities. It breeds throughout all the counties of England, Wales, and Scotland, as far north as Sutherlandshire. Its distribution in Scotland is somewhat local and greatly influenced by the presence of pine-woods, although there can be little doubt that it will extend its distribution as the planting of pines and firs increases. With the exception of Mull and Skye, the Coal Tit is absent from the Western Isles, nor does it ever appear to have occurred in the Orkneys or the Shetlands. In Ireland it is pretty generally distributed.

The geographical distribution of the Coal Tit presents several points of interest; for we find in this species a somewhat similar and parallel series of variations in colour to those of the Marsh-Tit and the Nuthatch. The British form, *P. britannicus*, appears to be peculiar to our islands. The typical form, *P. ater*, appears continually to visit our islands on migration, and apparently to interbreed with the British subspecies, as intermediate forms between them can be obtained. Our bird is distinguished by having the slate-grey of the upper parts suffused with brown, which in the typical form is observable on the rump only, and by having more brown on the flanks. The typical form appears to be found throughout the continent of Europe south of the Arctic circle. Examples from Western and Central Siberia scarcely differ, except that the white parts are somewhat purer, the slate-grey of the upper parts a little brighter, and a tendency to a crest is occasionally developed. In examples from Eastern Siberia, the valley of the Lower Amoor, the Ussuri, Japan, and Kamtschatka the upper parts scarcely present any difference, but the brown on the flanks extends to the breast and belly. In North China this is still more the case, and a decided crest is observable in adult males, so that this form has been described as distinct under the name of *P. pekinensis.* The brown on the underparts reaches its greatest development in Turkestan; and to this form the name of *P. rufipectus* has been applied. In birds from both these latter localities the upper parts also are suffused with brown, but not to quite such an extent as in examples of the British form. In the Himalayas the Coal Tit (*P. æmodius*) is, as might be expected, a still more tropical form: the buff on the underparts is slightly more pronounced; the white on the cheeks is not so pure; the size is slightly smaller, and the crest more developed. It is not known which form of the Coal Tit inhabits South Russia; but in the Caucasus a form is found, *P. michalowskii,* almost exactly like the British form in colour, but a trifle larger; and further east in South Persia these differences are exaggerated: the upper parts are still browner, inclining to olive; and the brown on the flanks is as much developed as in the Turkestan birds. This form has received the name of *P. phæonotus.* It is impossible to look upon any of these forms as specific. We know that most of them are connected together by intermediate examples; and the series is only broken in districts from which we have been unable to obtain specimens.

There are numerous tropical forms of the Coal Tit inhabiting the Himalayas. Several of these may be distinguished by the absence of the wing-bars; another, more nearly allied to our bird, *P. melanolophos,* is distinguished by its dark slate-grey belly and well-developed crest. In Algeria the Coal Tit, *P ledoucii,* appears to have been so long isolated from its relations as to have become specifically distinct, differing in having the underparts, including the cheeks and the nape, yellow instead of white or buff. The Coal Tit does not appear to have any representative in America.

The Coal Tit, although as interesting in its habits and appearance, is not quite so well known a bird as its congeners the Blue Tit and the Great Tit. It does not so often come into notice; for it usually confines itself to the woods and the wilder tracts of country, and is not commonly met with near houses. Its favourite haunts are the plantations and the copses near the moorlands; and it is often seen in little parties in furze-brakes and tangled thickets near streams. Perhaps the best place to study the habits of the Coal Tit is in the birch-copses late in autumn, when the foliage is thin and the birds readily seen. At this season they are in small parties (broods of the year probably and their parents), and are usually accompanied by a few Blue Tits, a Great Tit or two, and possibly a Creeper. Their call-note, something like *if-hee, if-hee, if-hee,* will probably arrest the attention long before the birds themselves are visible. Their actions are precisely the same as those of the other Tits: the same grotesque attitudes are assumed; each twig is explored in the same business-like way as with their congeners. Sometimes the Coal Tit visits the ground in search of food; and it may often be seen clinging to walls and posts, searching the crannies, the moss, and the lichens for insects.

Dixon thus writes of the Coal Tit:—"Perhaps their actions, though somewhat resembling those of the Titmice in general, are more rapid than those of other members of the family. You sometimes see them dart through the foliage with great rapidity, chasing each other apparently in sportive glee. There is scarcely a tree or a bush that the Coal Tit does not visit. Now hanging from the long pendent branches of the graceful birch, now searching the thorny sprays of the hawthorn, now on the topmost branches of the oak or ash, then onwards to the drooping elm; now on the lowly twigs of the hazel or elder-bushes; then the evergreens in turn are visited; and even the ivy on the ground is frequently explored. A favourite place to meet with the Coal Tit is on the spreading branches of the fir tree, notably those which are studded with cones. There you see him dexterously ejecting the tiny seeds from their scaly bed, the bird very often clinging to the cone, it may be on the extremity of a slender twig, and its active motions causing the branch and its living burden to sway backwards and forwards like the steady beat of a pendulum. A merry little party of wanderers they are, and busy themselves with their own affairs alone. When the sun nears the western horizon the Coal Tits, if it be winter time, repair to the verdant branches of the evergreen to roost, or sometimes seek shelter in the warm side of a haystack, always seeking that side opposite to the direction in which the wind is blowing. I have also often witnessed the migration of this charming little bird in the mellow days of October. It comes with the Goldcrests, and with them departs; for in this neighbourhood (Rivelin valley) the bird is only represented in the winter months by the few pairs that breed in the woods in this wild romantic place. I have seen them in scores in the birch-woods here, tarrying for a week perhaps, and then disappearing as suddenly as they had arrived."

The food of the Coal Tit is largely composed of insects; but this bird is also to no small extent a seed-eater. Mr. Tegetmeier gives an instance in the 'Field' of its feeding on filberts; and Montagu states that a nest of young birds kept in a cage were fed chiefly on small green caterpillars. The flight of the Coal Tit differs very little from that of the Blue Tit. It is performed by rapid and incessant beats of the wings, and is seldom prolonged for any great distance.

The Coal Tit's breeding-grounds are the birch-woods, pine- and fir-plantations, alder-swamps, and, more rarely, orchards and gardens. Early in spring we hear this bird's song—a performance scarcely deserving the name, it is true, but which is perhaps the closest attempt at music made by any of the Tits. The nest of the Coal Tit is generally found in holes of trees and stumps; but sometimes a hole in a wall will be selected. Birch-woods are favourite haunts of this bird during the breeding-season, where the abundance of holes suitable for nesting-purposes are most probably the chief attraction. Here, it may be, where a large limb has fallen in premature decay, leaving a hollow cavity in the parent stem, or where a trunk has been riven by the storm, the bird will build its nest. It will also select a hole in a large pine tree, or in the decaying alders near the stream. Orchard trees are more rarely chosen; but a hole in some stump in a hedgerow is a favourite place. The bird will also occasionally seek out a nesting-site in the ground, generally a hole under some half-exposed root or old stump. In some cases the bird will enlarge a hole for its purpose. The nest resembles those of the other Tits, and is very loosely put together. It is made of dry grass, moss, in some cases thickly felted with hair, and lined very warmly with feathers. The eggs, from five to eight or nine in number, are usually pure white spotted and freckled with light red. In some specimens the spots are bold and rich in colour, chiefly massed on the large end of the egg; in others they are evenly distributed over the entire surface in small dots. A beautiful clutch of eggs from Pomerania in my collection, nine in number, have the ground-colour delicate creamy white; many of the markings are confluent, and all are very pale and chiefly distributed in broad wavy streaks. One egg in this clutch has the colour distributed in the minutest of specks over the whole surface. They vary from ·7 to ·58 inch in length, and from ·5 to ·45 inch in breadth.

The British form of the Coal Tit has the head, the sides of the nape, and throat black, glossed with blue on the former; the ear-coverts and the cheeks are yellowish white; and the nape is white; the rest of the upper parts are brown; the wings and tail are greyish brown; the median and greater wing-coverts are tipped with dull white, forming a double bar across the wings; the breast and belly are dull white, shading into buffish brown on the flanks. Bill black; legs, feet, and claws lead-colour; irides hazel. Females are not so brilliant in colour, and the white patches of plumage are not so pure. The Coal Tit may at once be distinguished from the Marsh-Tit by the white patch on the nape.

PARUS PALUSTRIS.

MARSH-TIT.

(PLATE 9.)

Parus palustris, *Briss. Orn.* iii. p. 555 (1760); *Linn. Syst. Nat.* i. p. 341 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Bechstein, Temminck, Naumann, Gray, (Bonaparte), Newton, Dresser,* &c.
Pœcile palustris (*Linn.*), *Kaup, Natürl. Syst.* p. 114 (1829).
Pœcile communis, *Degl. et Gerbe, Orn. Eur.* i. p. 567 (1867, *ex Baldenstein*).

The Marsh-Tit inhabits the whole of Europe, Asia Minor, Turkestan, Siberia south of the Arctic circle, and North China, but is apparently absent from Persia, Afghanistan, and Mongolia. The difference of climate in such an extensive range has given rise to variations in size and in colour, which are said to be characteristic of varieties, subspecies, or species, according to the views of the writer. British examples are of a somewhat more sandy brown than those from the continent of Western Europe, but scarcely sufficiently so to warrant their separation. The variety of the Marsh-Tit which is generally accepted as the typical form of *P. palustris* is found throughout South-western Europe as far north and as far east as St. Petersburg. In this form the tail is nearly even and short, the upper parts are sandy brown, and the flanks are pale sandy brown. In Scandinavia, north of lat. 61° up to the Arctic circle and in North-west Russia, a form occurs having the tail rounded and slightly longer, the upper parts are slate-grey, and the flanks are only slightly suffused with brown: this form has been named *P. borealis*. In North-east Russia and West Siberia the birds have the tail still further increased in length, but the colour of the plumage does not exhibit any perceptible change: to this form the name of *P. baicalensis* has been applied. In birds still further to the east, in East Siberia and in the neighbourhood of Lake Baikal, the tail again becomes nearly even and appears to reach its greatest length, the bill is much smaller, and the slate-grey upper parts are slightly suffused with brown: to these birds Taczanowski has given the name of *P. brevirostris*; and he assures me that the difference between the two forms is well known to the bird-fanciers of Irkutsk, where they both occur. The long-tailed, short-billed form is said to be useless as a cage-bird, not possessing the powers of song which distinguish the other. In Kamtschatka a race, to which Bonaparte gave the name of *P. kamtschatkensis* *, is found which, were it not probable that intermediate forms occur, might fairly be considered specifically distinct. The tail is rounded, slightly shorter than that of the East-Siberian birds; the upper parts are sandy white, and the flanks pure white. This bird may be looked upon as the extreme arctic form. Southwards, in Japan the Marsh-Tit, to which I have given the name of *P. japonicus* *, has the tail, although rounded, still further decreased in length, and the colour of the upper parts is only slightly paler than in South-European examples; but the flanks are only faintly suffused with brown. In North China the Marsh-Tit of South-west Europe (*P. palustris*) reappears: the tail is nearly even, and equal in length to that of its European ally; and the only perceptible difference is that it is a trifle paler on the upper parts than examples from the British Islands †. The Marsh-Tit of Turkestan, *P. songarus*, is apparently speci-

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* The *P. kamtschatkensis* described by Dresser in his 'Birds of Europe' is nothing but the *Siberian* form of *P. borealis* (*P. baicalensis*). The true *P. kamtschatkensis* has lately been rediscovered by Dybowsky.

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* To better and more clearly express the differences found in the Marsh-Tit, I have drawn up the following Table:—

Locality.	Name.	Length of Tail. inches.	Remarks.
South-west Europe, including British Islands.	*P. palustris*	1·9 to 2·1	Tail nearly even; upper parts sandy brown. British examples most sandy; flanks pale sandy brown.
Scandinavia and North-west Russia.	*P. borealis*	2·1 to 2·35	Tail rounded; upper parts slate-grey; flanks white, slightly suffused with brown.
North-east Russia and West Siberia.	*P. baicalensis*	2·4 to 2·5	Tail rounded; upper parts slate-grey; flanks white, slightly suffused with brown.
East Siberia	*P. brevirostris*	2·5 to 2·6	Tail nearly even; bill small; upper parts slate-grey, with a slight shade of brown; flanks white, slightly suffused with brown.
Kamtschatka	*P. kamtschatkensis*..	2·4 to 2·3	Tail rounded; upper parts sandy white; flanks pure white.
Japan	*P. japonicus*	2·2 to 2·1	Tail rounded; upper parts pale sandy brown; flanks white, slightly more suffused with brown than in *P. baicalensis.*
China	*P. palustris*	2·0	Tail nearly even; upper parts sandy brown, very slightly paler than British examples; flanks pale sandy brown.
Turkestan	*P. songarus*	2·3 to 2·25	Tail rounded; upper parts rich sandy brown; flanks sandy brown.

† Dresser, 'Birds of Europe,' iii. p. 120, is in error in saying that the Chinese form most nearly resembles *P. borealis.*

fically distinct, being very much browner both above and below, especially on the flanks, than even examples of *P. palustris* from the British Islands; it has also the rounded tail which characterizes the birds of North Europe, Siberia, and Japan. It may be looked upon as a semitropical form, and is possibly more nearly allied to the Sombre Tit (*P. lugubris*) of South-eastern Europe, a species somewhat larger in size and having the black on the throat much more clearly defined, like the North-American representatives of the Marsh-Tit, *P atricapillus* and *P. carolinensis*. The range of *P. songarus* extends from the Thianshan and Alashan mountains eastwards to Kansu.

All these forms undoubtedly interbreed wherever their ranges meet, and can only be regarded as varieties of one variable species, which presents a striking example of scarcely distinguishable eastern and western forms connected together by a central semiarctic form, and represented in the south by a semitropical form—a peculiarity of geographical distribution characteristic of many species of migratory Palæarctic birds.

The Marsh-Tit has scarcely a right to its name. It is never seen on the reeds or in the sedge, which are the special characteristics of a marsh, but in bushes or trees of all kinds, great or small, on the confines of the reeds, on the bushes by the river-side, or in the garden; even in the suburban gardens on the outskirts of London or Sheffield, it is almost sure to be found. Nevertheless it is less partial to very dry districts than some of the other Tits. For example, in the Parnassus, though Krüper told me that he had found it down in the plains, I never met with it in either the pine-region or the district where beeches or oaks once flourished, but which is now only a grass region, whereas the Coal Tit, the Great Tit, and the Sombre Tit were all there. Again, in the endless pine-forests which surround Arcachon, both in the newer forests, where the ground is little more than bare sand, and in the older forests, where a subsoil of peat has established itself, though the Great Tit, the Crested Tit, and the Coal Tit are common, and we once saw a Blue Tit, we never met with a Marsh-Tit. The latter species, however, was not rare in the cultivated districts round Pau.

In its habits the Marsh-Tit scarcely differs from its near allies. Though smaller than most of them, it is as active as any of them, and, like the Goldcrests and the Willow-Warblers, may be seen in almost every conceivable position searching for insects on the buds at the end of a branch. Sometimes it peers down from above, and sometimes from below. Now it twists to this side, and now to that. Sometimes it hangs by one leg; and sometimes it may be seen poised in front of the end of the bough, with half-spread tail and its little wings buzzing like those of a hawkmoth. On the whole it is a silent bird; but sometimes, as it passes through the wood, you may hear its four loud and rather plaintive notes uttered in rapid succession, *tay, tay, tay, tay*; and by following the sound you may trace the rapidity with which the bird flits from tree to tree, probably calling for its mate. At other times a much lower and still more plaintive *wee, wee,* is heard. In spring I have heard it utter a loud *ti-ted', ti-ted',* something like the still louder note of the Great Tit, which I always fancy is an imitation of a rusty-axled wheelbarrow creaking as it is trundled along. Its song is a very simple *sis, sis, sis, see,* scarcely deserving to be called a song at all.

In most parts of its range the Marsh-Tit is a resident; but in autumn these birds wander about considerably, and I have frequently noticed that in some localities they suddenly become common for a few weeks and then disappear. In Norfolk it is said that in autumn an arrival of Marsh-Tits from the continent has been observed; and this is confirmed by the appearance of these birds on Heligoland. Of all the British Tits the Marsh-Tit is apparently the most hardy. Its range continues considerably further north than any of the rest, and, indeed, than any of the Palæarctic Tits, with the single exception of the Lapp Tit. Like most of the other species of this family, it is a very sociable bird, except perhaps during the breeding-season. In this country I have generally seen it in company with the Blue Tit and the Great Tit. In the south of France it often joined a party of Goldcrests; and in Siberia it was in the same flock as the Lapp Tit and the Nuthatch. The tendency of birds to flock together when food is scarce is almost universal, and probably is of great service, especially in countries where the winters are severe, not only in discovering supplies of food, but also in giving timely notice of the approach of danger.

The Marsh-Tit may almost be said to be omnivorous; nothing comes amiss to it. In winter you may easily obtain an opportunity of watching its habits in frosty weather by hanging up a bone, or a lump of suet, or even a tallow candle in the garden. It is very fond of seeds of all kinds; and scarcely any sort of fruit, soft or hard, is neglected; but perhaps, on the whole, this bird is chiefly insectivorous.

I have always found the nest of the Marsh-Tit in a hole in a tree, generally near the ground, and almost always in such a narrow hole that it was necessary to use a wire to draw out the eggs with part of the nest. Many other situations, however, are on record. It has repeatedly been observed to excavate a hole for itself in a decayed tree, the entrance being then as round as the hole of a Woodpecker, and small in proportion to the size of the bird. Occasionally it breeds in a pollard willow, and has even been known to build in a rabbit-burrow or an old rat's hole. The inside of the hole, if too deep, is filled up with bits of wood or small twigs, and upon this foundation a moderately neat nest is composed of moss, wool, hair, and any other soft material that may be within reach. Fresh eggs may be found in May; and it is said that a second brood is often reared.

The number varies from five to eight, and some writers say even twelve; but no such case has ever come under my notice. They are white with a scarcely perceptible yellowish tinge in ground-colour, spotted and speckled with light red. The markings are usually most numerous on the large end of the egg. Some specimens have the spots very small and more evenly distributed than others, and on some eggs there are a few short streaky spots of blackish brown. They vary from ·67 to ·6 inch in length and from ·52 to ·47 inch in breadth. It is impossible to distinguish the eggs of the Marsh-Tit from those of its allies. They are, of course, slightly smaller than Great Tit's; but the only safe guide to the correct authentication of the eggs of this bird, and indeed of those of all the Tits, is by observing the parent birds.

The typical form of the Marsh-Tit has the head, from the base of the bill to the nape, bluish black; the cheeks and sides of the neck are white; the rest of the upper parts are sandy brown, paler on the rump; the wings and tail are dark brown, the feathers of the former with lighter margins; but there are no pale tips to the wing-coverts. The chin and upper throat are black, the feathers more or less margined with dull white; the breast and belly are dull greyish white tinged with buff on the flanks and lower belly. Bill black; legs, feet, and claws lead-colour; irides dark brown. The female does not differ in colour from the male; and young birds closely resemble their parents, but the colours are duller.

PARUS CRISTATUS.

CRESTED TIT.

(PLATE 9.)

Parus cristatus, *Briss. Orn.* iii. p. 558 (1760); *Linn. Syst. Nat.* i. p. 340 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Bechstein, Naumann, Temminck, Gray, (Bonaparte), Degland, Gerbe, Newton, Dresser,* &c.
Lophophanes cristatus (*Linn.*), *Kaup, Natürl. Syst.* p. 92 (1829).
Parus mitratus, *Brehm, Vög. Deutschl.* p. 467 (1831).

The Crested Tit is one of the most local of our indigenous birds. Its only known breeding-grounds in the British Islands are in Scotland, in the valley of the Spey and in the adjoining counties of Ross and Inverness on the west, and Aberdeen on the east. In winter its distribution is a little more extended, and Mr. Gray remarks that it has been obtained as far south as Perthshire. In the western counties of Scotland but two specimens have been obtained—one in 1838 near Barcaldine House in Argyleshire, and another, of which the exact date is not known, taken near Dumbarton. Although, on the authority of Jardine, it has been said to have occurred in Lanarkshire, Mr. Gray has been unable to trace it in any part of that county during the last twenty years. In England, Mr. Harting, in his 'Handbook,' records eight instances of its occurrence; Mr. Simpson records another in the 'Zoologist' for 1872, p. 3021, and Baron Von Hügel one more specimen in the same periodical for 1874, p. 4065. Although not included by Thompson, the bird has occurred in Ireland, as shown by Sharpe and Dresser, upon the authority of Mr. Blake Knox, who mentions two specimens.

The Crested Tit, though its range is very restricted, is much commoner and less local on the Continent, being a resident in most of the pine-forests, though it does not appear to range further north than lat. 64°, whence Meves records it. To the east it has only with certainty been found as far as the valleys of the Don and the Volga above Sarepta. Bogdanow thinks that its occurrence in the Caucasus rests upon insufficient evidence. To the south it is found in many localities as far as the Mediterranean, but its range does not appear to extend to Africa. Krüper found it in Turkey; but it has not yet occurred in Italy south of the Alps, Greece, Asia Minor, or Palestine.

There are several species of Tit which are distinguished by having a crest; but since in the Coal Tits there seems to be a series of intermediate forms between the crested and non-crested varieties, it would be extremely unadvisable to separate them from the genus *Parus*, otherwise than merely subgenerically, although they have been so separated by Kaup under the generic name of *Lophophanes.* Some of these crested Tits inhabit the Himalayas, and others are found in North America; and it does not appear that there are any other characters by which to separate them from the non-crested Tits. The Crested Tit has no near ally in the eastern hemisphere. The only species which approaches it is *P wollweberi,* which inhabits Mexico, New Mexico, Arizona, and Western Texas. The most important difference between the two species is that the American bird has the white on the crest replaced by slate-grey.

The Crested Tit can scarcely be called a migratory bird, though in autumn it partially forsakes the pine-forests, where it breeds, and is seen in winter in many of the small woods and plantations, and even the gardens, in the neighbouring districts; but even in these localities it prefers the pine to any other tree.

The Crested Tit is not a bird of the desert; but it is emphatically a bird of the sand—not on account of the sand, but for the pines that grow on the dunes and sand plains. The first step in the transformation of sand into arable land is to plant pine trees, under which a soil is gradually accumulated from the decayed bark, spines, cones, and branches of the trees, together with the grass, moss, and underwood which the moisture under the perennial shade causes to grow. In the south-east of Holland, at Valconswaard, and in the south-west of France, at Arcachon, you may travel for miles over country where sand and pine trees are almost the only feature in the landscape. These forests are the paradise of the Crested Tit. I spent a summer at Valconswaard and a winter at Arcachon, and in both districts I was struck with the abundance of this handsome little bird. It is not only the commonest Tit of the pine-forest, but the commonest bird. Most birds prefer the outskirts of the forest, near to the patches of cultivated land. In the heart of a forest birds are generally rare, in winter especially so. What few birds there are, seem to be more or less gregarious. In wandering through the pine-forests of Arcachon we sometimes did not see a bird for half an hour. Then a Crested Tit would be heard; three or four more would be sure to be in its company, and most likely a Great Tit or two, and a few Goldcrests or Firecrests. In most of these batches of birds there were a few Chaffinches, and very often a Creeper. Now and then Long-tailed Tits formed a portion of the party, and rarely a few Coal Tits; but Crested Tits were always there. They are very active, flitting from branch to branch, running over the pine-cones in search of insects; and they seem to have taken a leaf out of the book of their associate the Creeper, and may often be seen on the trunks of the pines, where they search for insects in the crevices of the bark. Sometimes they run up the stems of the pines exactly as the Creeper does. It is not difficult to recognize the Crested Tit on the wing. In the bright sunshine which is such a distinguishing feature of the Arcachon winters the white edges to the black feathers of the head of the Crested Tit are generally very conspicuous during flight; and often enough when the little bird is hanging under a branch of a lofty pine, the outline of its erected crest is easy to see against the sky. But the surest way of detecting its presence is to listen for its note. Its call-note is a not very loud *si, si, si,* which seems to be common to many of the Tits; but this is often followed by a spluttering note difficult to express on paper, which, as far as I know, is peculiar to the Crested Tit. It is a lame attempt at a trill, a sort of *ptur, re, re, re, ree.* The pine trees in the Arcachon forest are tapped for their resin. Three or four longitudinal scores are made on the trunks; and these are lengthened as they dry up until they reach a considerable height from the ground. When the tree gets old the weather rots the part where the bark has been removed, and the trunk swells out and cracks, and all kinds of convenient nooks and crannies are formed, where Tits and other birds who like such situations for their nests can breed. Some of these trees in the old forest of La Teste attain a diameter of four, and even five feet; and occasionally one comes across a fine old oak. The Crested Tits seem, however, to prefer the pines; and although the Great and the Coal Tits are very fond of searching for insects on the ground amongst the fallen oak-leaves, I have never seen the Crested Tit on the ground. In the pine-forosts of Pomerania and of the Alps I found this bird equally common.

In Scotland the haunt of the Crested Tit is the pine-woods, and more rarely the birch-plantations. The breeding-season of the bird, both in Scotland and in Pomerania, commences about the middle of April; and the eggs are laid by the first week in May. Russow says that in the Russian Baltic Provinces it often has a second brood early in June.

The Crested Tit generally builds its nest in a hole in a tree, and usually at no very great height from the ground; but in forests where there are not many old trees, and suitable holes are not easily found, it will often construct its nest in the foundations of large nests (those of birds of prey, Crows, &c.), or it lays its eggs in the forsaken nests of the Magpie, the Crow, or the Squirrel, or even of the Wren. More than one ornithologist has maintained that it builds a nest of its own with a hole in the side, like that of the Wren. It has been known to breed in the little wooden boxes which the Germans are so fond of putting up for the accommodation of their favourites the Starlings; and it is said often to hollow out a hole for itself in decayed trees and old half-rotten pallisades.

The nest is put together in a somewhat slovenly fashion, and made of dry grass, moss, wool, feathers, and very often the fur of the "blue hare" thickly felted together. The eggs of the Crested Tit are from four to six or seven in number, and differ considerably in the amount and distribution of the markings. They are pure white in ground-colour, some specimens spotted and speckled over the whole surface with brownish red, others with the markings in a confluent zone round the end. In some specimens this band is increased into an irregular patch, which almost conceals the ground-colour of the large end of the egg; whilst in others the spots are very rich and bold, forming bands of colour round the egg. The colour of the spots is also subject to variation; and usually those eggs which are evenly and minutely marked have the spots darker red than those specimens in which the markings are larger. Clutches are sometimes obtained in which the spots are almost absent, or displayed on one of the eggs only; but as a rule the eggs of the Crested Tit are more richly and boldly spotted than those of its allies. They measure from ·7 to ·6 inch in length, and from ·55 to ·47 inch in breadth.

The food of the Crested Tit is composed of insects and small seeds of various kinds; and, like all its congeners, it is of great service in ridding the twigs and buds of vast quantities of injurious pests. It is also said to feed on juniper-berries.

The Crested Tit has the general colour of the upper parts from below the nape buffish brown, becoming dusky brown on the wings and tail; the feathers of the head are black, broadly margined with dull white, those from the crown backwards considerably elongated and recurved, forming a graceful crest; from the base of the bill through the eye to the back of the head, thence coming downwards to below the cheeks, is a black band; another band of the same colour, and separated from the foregoing by a white band, crosses the head, neck, and, passing round the white ear-coverts and cheeks, joins the black on the throat. The breast is dirty white; and the belly, flanks, and under tail-coverts are pale buffish brown. Bill black; legs and feet lead-colour; irides brown. The female is similar to the male in colour, but has the crest shorter and the black on the throat less developed. Birds of the year resemble females.

Genus ACREDULA.

Both Brisson and Linnæus included the Long-tailed Tit in the genus *Parus,* a course which is still followed by many naturalists. The Long-tailed Tit was simultaneously removed from the genus *Parus* in 1816 by Koch and Leach, the former writer establishing the genus *Acredula,* in his 'Systema der baierischen Zoologie,' p. 199, and the latter, in his 'Systematic Catalogue,' p. 17, adopting the name of *Mecistura* for the bird. It is impossible to say which writer has the precedence; but as Koch carefully pointed out the characters on which his new genus was based, and as Leach merely changed the name without giving any diagnosis whatever, it is only bare justice to adopt that of the former writer. As *A. caudata* was the only species known to Koch, it becomes of course the type.

The Long-tailed Tits differ from the true Tits (*Parus*) in having the tail much longer than the wing and graduated. In other respects they do not differ much; but their plumage is of a looser texture, and their style of coloration is peculiar.

The birds in this genus are apparently confined to the Palæarctic Region; but in the Nearctic Region they are represented by the very nearly allied genus *Psaltriparus.* It contains about seven species, of which four are European, one of which is a common resident in and the other an occasional straggler to our islands.

The Long-tailed Tits do not differ much in their habits from their congeners; they are perhaps more gregarious, and wander about in small parties in search of food. The haunts they frequent are similar to those of the other Tits. They do not possess any song. They build beautiful dome-shaped nests of moss, lichens, feathers, wool, &c., usually placing them in bushes. Their eggs are numerous, pure white in colour, sparingly speckled with reddish brown.

ACREDULA CAUDATA AND ACREDULA ROSEA.

CONTINENTAL LONG-TAILED TIT and BRITISH LONG-TAILED TIT.

(PLATE 9.)

These two forms are united together by a series of intermediate examples, which are found in those districts where their respective ranges meet, leading to the supposition that they are only subspecifically distinct and interbreed wherever they have the opportunity. The synonymy of the two forms is as follows :—

ACREDULA CAUDATA.

CONTINENTAL LONG-TAILED TIT.

Parus longicaudus, *Briss. Orn.* ii. p. 570 (1760).
Parus caudatus, *Linn. Syst. Nat.* i. p. 342 (1766); **et auctorum plurimorum**—*Gmelin, Bonaparte, Crespon, Malherbe,* (*Bechstein*), (*Naumann*), (*Newton*), &c.
Acredula caudata (*Linn.*), *Koch, Syst. baier. Zool.* p. 200 (1816).
Ægithalus caudatus (*Linn.*), *Boie, Isis,* 1825, p. 556.
Orites caudatus (*Linn.*), *Sundev. Sv. Fogl.* p. 92 (1856).

ACREDULA ROSEA.

BRITISH LONG-TAILED TIT.

Acredula vagans, *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 17 (1816).
Mecistura rosea, *Blyth, White's Nat. Hist. Selborne,* p. 111, footnote (1836); **et auctorum plurimorum**—(*Gray*), *Sharpe, Dresser, Giglioli, Elwes, Buckley, Danford, Harvie-Brown,* &c.
Mecistura longicaudata, *Macgill. Hist. Brit. B.* ii. p. 454 (1839).
Acredula rosea (*Blyth*), *Sharpe, Ibis,* 1868, p. 300.
Parus roseus (*Blyth*), *Gray, Hand-l. B.* i. p. 234 (1869).
Acredula caudata (*Linn.*), *apud Newton &c.*

The British Long-tailed Tit is by no means confined to the British Islands. In England and Wales it is generally distributed and probably breeds in every county, although it becomes somewhat local in certain districts. In the Channel Islands, Mr. Cecil Smith remarks that he has never met with it; but Professor Ansted, in his list, states that it occurs in Guernsey and Sark. In Scotland, although generally distributed, it is rarer, doubtless because the districts suited to its habits are fewer; but it is more numerous in winter. It is also found on some of the Inner

Islands of the west, as, for instance, Islay and Skye, in which latter locality Dixon met with it. A party of four were seen by Dr. Saxby in Unst in the middle of April 1860; but that gentleman states that he has never met with the bird in any other part of the Shetlands; nor does it ever appear to have visited the Orkneys or the Faroes. In Ireland the Long-tailed Tit, according to Thompson, is distributed through the wooded districts, especially in the northern portions of the island, although not commonly.

The British form of the Long-tailed Tit is found in France, Western Germany, Northern Italy, and some parts of Turkey, and apparently interbreeds with the Continental form *A. caudata,* which differs from it in the adult bird having a pure white head. The latter form ranges throughout Northern and Central Europe between the Arctic circle and the Alps, its range extending eastwards through Southern Siberia to the Pacific. In the north, from St. Petersburg eastwards, the tail is somewhat lengthened, varying from 3·7 to 4 inch, instead of from 3·3 to 3·5 inch. This form has received the name of *A. macrura,* and is replaced in the valley of the Amoor by *A. caudata,* although, curiously enough, it reappears on the island of Askold. In Kamtschatka, the North Island of Japan, and in Manchuria one of these two forms occurs; but on the chief island of Japan *A. trivirgata* is found, which is, in fact, a reappearance of *A. rosea,* whose only claim to rank as a distinct species rests on the fact that in the majority of skins, though not in all, the black supercilium passes across the lores to the base of the bill. In Spain, Central and South Italy, and Sicily *A. irbii* is found, in which the vinaceous colour on the scapulars is replaced by grey; but in Lombardy it would appear that *A. irbii* and *A. rosea* interbreed, as intermediate examples occur. In the Balkan peninsula, Asia Minor, Persia, and Turkestan a distinct species, *A. tephronota,* occurs, resembling *A. irbii,* but differing from it in having a black patch on the throat. It is not known how far east this bird ranges; but in China it is represented by *A. glaucogularis,* a species only differing from it in having the white forehead replaced by black.

The Long-tailed Tit is a lover of the woods and groves; and unless the district is a well-timbered one, it is almost useless to expect to fall in with it. Like all its little congeners, it may often be seen in the vicinity of houses, haunting the gardens and orchards. Favourite places are the broad pasture-lands divided from each other by tall hedges, with here and there a little plantation, or a waste corner left to grow bushes of gorse and blackthorn. It may often be seen on the borders of the forest, on the land which is, as it were, struggling against the encroachment of the trees, and studded with tall hawthorns, a few birches, and plenty of thicket, in which the "Bottle-Tit" loves to build its nest.

As with all the Tits, the present species is perhaps the most engaging in winter: certainly it is by far the most frequently seen at that season; and its gregarious habits, adopted after the family are safely reared, seldom fail to arrest the observer's attention, as in a merry little party they flit along from bush to bush before him. The Long-tailed Tit is a thorough nomad in winter, and wanders far in search of its food. Nor does it appear to congregate with other Titmice to any great extent, a family of birds usually keeping to themselves. Ever restless, they flit from tree to tree. Here and there you may see the branches tremble as the "Bottle-Tits" explore the twigs. Sometimes one or two of the party are on the outside branches, and their peculiar attitudes amuse and interest you. But not a moment are they still. First one leaves the twigs, uttering its oft-repeated call-note, and in a somewhat slow and undulating flight comes still nearer to you. It is soon followed by another, another, and another, until the little party are all together again, busy and lively as before. You may follow them the whole length of the shrubbery and into the tall hedges of the fields beyond; yet their actions are precisely the same. They will flit from spray to spray before you, rarely taking a long flight, and always keep close company. Sometimes they will visit the bushes close to the ground; and often they will explore every twig on the topmost branches of the tallest trees. They are not at all shy birds, although their rapid movements are sometimes apt to lead the observer to suppose that they are full of wariness.

The Long-tailed Tit is a pretty common bird in the woods near Pau. The winter before last I was often much amused by observing the habits of this species. These little birds seemed to find few or no insects on the branches of the trees; but gnats were numerous in the sunshine, and it was amusing to watch their efforts to catch them on the wing. On the whole they seemed to be successful flycatchers, judging from the pertinacity with which they kept up the pursuit; but their long tails seemed to be dreadfully in their way. When they were flying from branch to branch they had no difficulty in getting sufficient "way" on to make the tail follow horizontally; but the moment they began flycatching, and their flights became shorter and slower, they were entirely unable to hold up their tails, and the little things had to fly up at the flock of gnats, their tails hanging down and their little wings going with all their might. In this way I watched them suspended in the air under the gnats for some seconds, when they glided into a branch, either because their wings were tired or because they had caught a gnat and took a rest to swallow it.

In early spring the Long-tailed Tit ceases to be a gregarious species, and the families of those birds that have lived together throughout the autumn and winter pair and disperse for the purpose of breeding. Its nesting-grounds are the well-timbered districts, in shrubberies, woods, plantations, gardens, and orchards, also in tall hedges and in thick underwood. Unlike the birds forming the genus *Parus*, the Long-tailed Tit builds a nest in the branches of trees and shrubs—a nest of matchless beauty, which costs the little owners at least a fortnight's incessant labour to complete. In the slender twigs near the lichen-covered branch of a hoary oak tree, in the branches of the hazel or the whitethorn in the hedgerows, or amongst the prickly branches of the furze, where the fresh green foliage and bright-yellow blooms form a contrast of the greatest beauty—in all these situations the Long-tailed Tit's nest may be frequently found. But it is perhaps seen in the branches of the holly or the whitethorn more frequently than in any other situation. It is built at various heights from the ground, sometimes only a few feet, at others, as mentioned by Mr. Wharton, at an elevation of fifty feet. Apropos of this matter several interesting communications may be found in the 'Zoologist' for 1882, pp. 187, 233, 234, made by the above-named naturalist and several others. Mr. J. Cordeaux also gives an instance in the 'Zoologist,' 1873 (p. 3558), of a nest of this bird placed at the very summit of a spruce-fir fourteen feet from the ground. The nest is oval in shape; and a small hole in the side near the top admits the parent birds. The materials that compose it are very similar to those used by the Chaffinch—the greenest moss, lichens, and cobwebs all felted artfully together, and lined with an immense number of feathers and hairs. The nest of this bird is undoubtedly the finest piece of bird-architecture found in our islands. The eggs of the Long-tailed Tit vary considerably in number. Some nests only contain six eggs, whilst others may be found with eleven, and in rare instances as many as sixteen or twenty have been known. It is the opinion of some observers that where so many eggs are found in the nest they are the production of more than one female. We have, however, no direct evidence that such is the case. The eggs are pure white or pearly grey in ground-colour, with a few small spots of light-red, and fainter marks of purple, although many specimens are spotless or appear to have the scanty colouring-matter delicately suffused over the entire surface; sometimes they are without any trace of markings. They measure from ·63 to ·52 inch in length and from ·48 to ·4 inch in breadth. The eggs of this bird are less spotted than those of any other Tit.

Several naturalists, amongst whom may be included Selby, have asserted that the nest of this bird contains *two* holes; but if such be the case, it is a most exceptional occurrence. The bird when sitting places its long tail over its back; in fact it would be difficult for it to sit in any other manner. When we bear in mind how numerous their family, it is indeed wonderful how the little creatures rear them. That they safely do so is proved by the fact that in a few short weeks they may all be seen in the company of their parents, with whom they keep in a family party through the coming autumn and winter.

The food of the Long-tailed Tit, though chiefly, is not entirely composed of insects; for it also eats small seeds of various kinds, such as those of grasses and of the birch. Its call-notes are not perhaps quite so varied as those of the other Tits. Besides the usual clear and shrill *zi-zi-zi* or *pe-pe-pe* it has a different note, something like what I call the spluttering note of the Crested Tit—a sort of *ptge*, impossible to express on paper, which is constantly repeated when feeding. It has no note that can be called a song.

The British form of the Long-tailed Tit has the head white; on each side of the crown, extending from just before the eye to the nape, is a black band; the back is black, shading into a rosy pink on the rump and scapulars; the wings are brownish-black, the innermost secondaries are broadly edged with white; the tail, which is very long, is black, the three outside feathers white on the outer web, and on part of the inner web at the end, the white only extending over half of the third feather; bill black; legs, toes, and claws dark brown; eyelids red; irides hazel. The female does not differ from the male, except that the black band on the head and nape is broader. Young birds are duller than their parents.

The Continental form of the Long-tailed Tit, whose chief point of distinction has been already noticed, has occurred several times in the British Islands. In November 1852 a specimen was picked up dead at Tynemouth, and is now in Mr. Hancock's collection. Another is in the Newcastle Museum; but there appears to be no reliable information concerning it, and therefore it is only with great doubt that it can be classed as a "British specimen." Mr. John Gatcombe records, in the 'Zoologist' (1872, p. 2943), the occurrence of another specimen, observed by him in the October of the previous year. And, lastly, Mr. John Cordeaux states, in the 'Zoologist' (1873, p. 3401), that he saw an example in North Lincolnshire in the winter of 1872. Both the birds in the last two instances were in company with a flock of the British form of this bird.

The habits of this subspecies are not known to differ from those of its British representative; nor is there any difference in its nest and eggs,—rendering a further description of them quite unnecessary.

* * *

Genus PANURUS.

The Bearded Tit was separated from the genus *Parus,* in which both Linnæus and Brisson included it, by Koch and Leach in 1816. As the latter naturalist did not assign any characters to his new genus *Calamophilus,* it is only right that Koch's genus *Panurus* should have the preference, which he established and clearly defined for this bird's reception in his 'System der baierischen Zoologie,' p. 201. As this species was the only one known to Koch, it must be regarded as the type.

The Bearded Tit is a very aberrant member of the subfamily Parinæ, but no more so than the Creeper or the Nuthatch. Some writers have placed it near the Buntings, some of which it much resembles in its habits and the markings of its eggs. The cranial and palatal characters are said by competent authorities to show its relationship to the Tits; and its probable place in this subfamily is between the Long-tailed Tits and the Penduline Tits, as it has the long graduated tail of the former and the minute bastard primary of the latter. A distinctive character appears to be the elongation of the feathers of the sides of the throat into a moustache. The bill, though orange-yellow in colour, does not differ much in shape from that of typical *Parus,* with which the bird also agrees in the structure of its feet and in the position of the nostrils.

The Bearded Tit haunts marshy places, fens, and reed-tracts. But one species of this genus is known, whose geographical distribution, habits, food, nest, &c. will be treated of in the following article.

PANURUS BIARMICUS.

BEARDED TIT.

(Plate 12.)

Parus barbatus, *Briss. Orn.* iii. p. 567 (1760).
Parus biarmicus, *Linn. Syst. Nat.* i. p. 342 (1766); **et auctorum plurimorum**—(*Degland*), (*Gerbe*), *Naumann*, *Temminck*, (*Gray*), (*Newton*), (*Dresser*), &c.
Calamophilus biarmicus (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 17 (1816).
Panurus biarmicus (*Linn.*), *Koch, Syst. baier. Zool.* p. 202 (1816).
Mystacinus biarmicus (*Linn.*), *Boie, Isis*, 1822, p. 556.
Ægythalus biarmicus (*Linn.*), *Boie, Isis*, 1826, p. 975.
Calamophilus barbatus (*Briss.*), *Keys. u. Blas. Wirb. Eur.* p. xliii (1840).
Paroides biarmicus (*Linn.*), *Gray, Gen. B.* i. p. 193 (1847).
Panurus barbatus (*Briss.*), *Saunders, Ibis*, 1871, p. 208.

The Bearded Tit is not yet extinct in this country, though it seems to be in a fair way to become so, in consequence of the drainage of its favourite marshes, of occasional severe winters, and of the incessant persecution to which it is subjected by reed-men in the commission of bird-fanciers and egg-collectors. It is still found in the fen-districts of Norfolk, in Devonshire, and more or less accidentally in some of the intervening country, and the south-east counties of England. Formerly its range extended more to the north; but it is doubtful whether it has ever been obtained in Scotland or Ireland, or even Wales.

On the continent the range of the Bearded Tit is an extensive one; but it has not been recorded south of the Mediterranean or north of Pomerania. In the latter country and in Holland and Hungary the Bearded Tit is a summer visitor. In Germany and France it is principally known as passing through in spring and autumn; but in Spain, Italy, and Sicily it appears to be a resident. In Greece and Asia Minor it is said to be extremely rare, its place being apparently taken by the Penduline Tit. Eastwards it is much more common. It is resident in many suitable localities in South Russia—for example, at Sarepta; it is extremely common in the delta of the Volga, and is also a resident in the delta of the Terek, as well as in Turkestan. Finsch obtained it in the swamps of the Kara Irtish, south of Lake Zaisan, on the borders of Chinese Tartary; and Prjevalsky found it in North-eastern Thibet. Like other members of the subfamily of Parinæ, it is not to be wondered at that, in a range extending from Spain to Thibet, it shows considerable local variations of colouring. British examples are the most rufous, those from Holland are somewhat paler; examples from Transylvania are still more so; but those from Central Asia are the palest of all. Compared with British skins, this pale eastern race, to which Bonaparte gave the name of *Panurus sibiricus* (*Calamophilus sibiricus*, Bonap. Compt. Rend. 1856, p. 414), is an excellent species; but the intermediate forms from the intervening localities compel us to consider the difference between them only subspecific*.

The Bearded Tit, as much as the Reed-Warbler or Savi's Warbler, and much more than the Reed-Bunting, is a bird of the reeds. In the Broads it is called the Reed-Pheasant from its pheasant-like tail; and by writers who for some reason or other think it is not one of the Parinæ, it is often called the Bearded Reedling. The reed-beds of the Broads are particularly adapted to the requirements of this remarkable-looking bird, and also afford excellent opportunities for watching its habits. You can quietly punt down the stream that winds through the reed-beds; and where it widens into a broad you can force your way amongst the reeds in many directions; and where the stream is narrow you can land on the banks and wade far into the marshes on either side. The time to choose for a visit is the last half of April. The earliest date at which eggs are laid is, according to Stephenson, the first week in April; but the Bearded Tit has probably two broods, as I have eggs taken in the second week of June. When I was there on the 15th of May, the young were already hatched. We landed within a few yards of a nest of these charming birds; it contained three young ones, an egg in the process of hatching, and a rotten egg. It is very important to have a calm day for studying the habits of the Bearded Tit. Its long tail is sadly in the way in windy weather, and forces it to keep almost entirely to the shelter of the reeds. Unfortunately a light breeze had sprung up during the morning, which also prevented us from hearing the notes of the parent birds as well as we otherwise should have done. Of course, so late in the breeding-season, we did not expect to hear the song, which is said to be only a few simple notes, something like those of the Blue Tit. The call-note appeared to be a musical *ping, ping,* something like the twang of a banjo. The alarm-note is said to be a *chir-r-r-r*, something like the scold of a Whitethroat. The cry of distress is described as a plaintive *ee-ar, ee-ar*. Both parents were busy in feeding their young with what, as far as we could judge through our binoculars, were small flies. They were not particularly wild or timid, and allowed us to watch them closely as they clung to the swaying reeds; but if we approached too near they dropped down the stalks of the reeds, and were immediately hidden in the undergrowth of sedge. The nest was built about a foot from the ground, on a clump of sedge (*Carex*), and was partially concealed by overhanging reeds. It was built of flat grasses, rather deep, and was lined with the flower of the reed. Whether perched upon a reed rocking with the wind, or flitting across the bows of the boat over the channel from one reed-bed to the other with uncertain undulating flight, or passing over the tops of the reeds with what one might almost describe as a dancing motion, this bird is most fascinating, not only to an ornithologist, but to the casual observer. It does not look like a common British bird, but has all the charms of a distinguished foreigner: we have birds far more elegant, but none more aristocratic-looking; we have birds far handsomer, but none more *distingués*.

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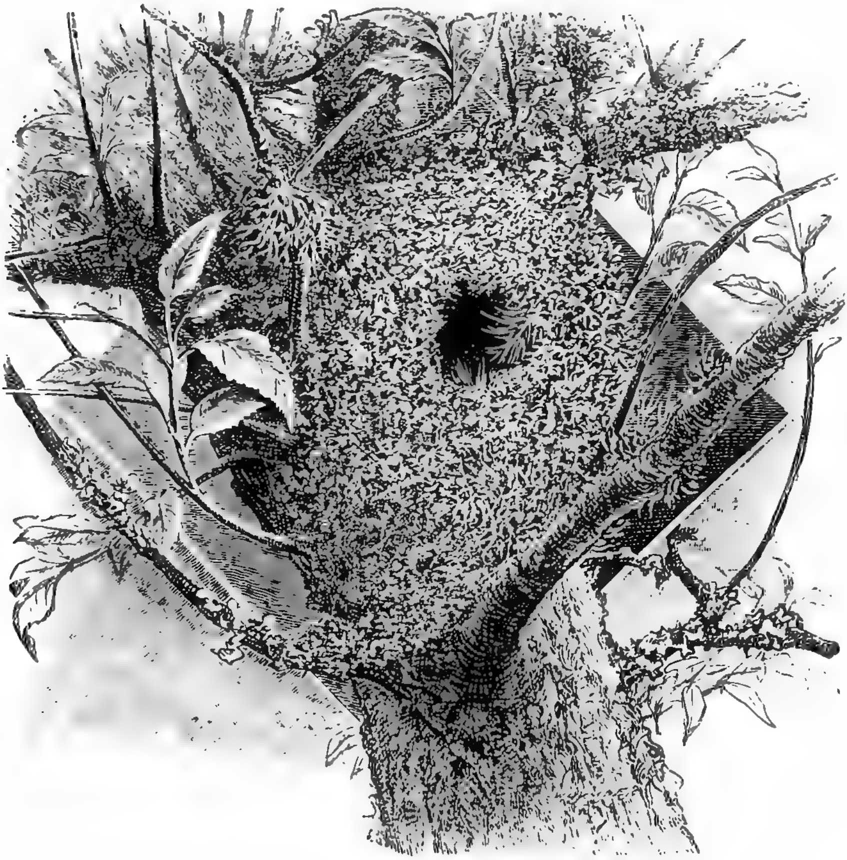
* There seems to be a conspiracy to deprive Bonaparte of the merit of his discovery altogether. The editors of the continuation of the Appendix to Naumann's 'Birds of Germany,' published after the death of the great ornithologist, say that the example which Bonaparte described was only a young bird of the Common Bearded Tit; and Dr. Gadow, in his volume of the British-Museum 'Catalogue,' containing the Tits, regards the pale examples obtained by Finsch as birds in abraded summer plumage, and moulting on the 2nd of June! If it is possible that this is the case (of which, after a careful examination of the skins, I can see no evidence), it would be best to remove the Bearded Tit at once to the Warblers.

Like other Tits it is a resident in our islands, and flocks in winter in small parties which sometimes wander far from their breeding-grounds in search of food; and like them, too, it feeds both upon insects and seeds.

In the 'Zoologist' for 1875, p. 4693, is a very interesting account (written by my friend Mr. John Young) of the breeding of this bird in confinement: two hens, accompanied by a cock, laid the astonishing number of forty-nine eggs between the 30th of May and the 2nd of August. The usual number of eggs varies from four to seven. They cannot be confused with the eggs of any other British bird. They most closely resemble in some respects the eggs of the Buntings, but always possess peculiar characteristics which readily distinguish them. They are white slightly suffused with brown in ground-colour, similar to the Stock-Dove's, possess considerable gloss, and are somewhat sparingly marked with short wavy lines, specks, and streaks of dark brown. Some specimens are a trifle more thickly marked than others; but otherwise little variation is seen. The eggs are remarkably large for the size of the bird, and vary from ·75 to ·65 inch in length, and from ·6 to ·53 inch in breadth.

The Bearded Tit has the head slate-grey; the lores, a streak extending halfway over the eye, and a long moustachial patch of pointed feathers are black; the nape, back, and rump are in British examples rich rufous-brown; the scapulars are buffish white; the lesser wing-coverts are greyish brown tipped with buff; and the greater are black, with broad margins and tips of rufous-brown; the wings are dark brown, the primaries broadly edged and tipped with white, the secondaries with rich rufous-brown; the tail is rufous-brown like the back, the external feathers tipped with greyish white, which colour forms a margin to the two outermost feathers, which are black at the base. The chin and throat are pale grey, the sides of the latter suffused with rosy pink, which colour also extends across the breast; the flanks are rich rufous-brown, the centre of the belly buffish white, and the under tail-coverts are black. Bill orange-yellow; legs, feet, and claws black; irides yellow. The female differs from the male by having the head brown, by having no moustachial stripe or black lores; the underparts are browner, the under tail-coverts are rufous, and her plumage generally is less brilliant. Young birds resemble the female; but the crown and back are streaked with black.



LONG-TAILED TIT'S NEST.

Genus ACCENTOR.

The genus *Accentor* was established in 1802 by Bechstein, in his 'Ornithologisches Taschenbuch,' i. p. 191, for the reception of the Alpine Accentor, which consequently becomes the type.

The Accentors are a very aberrant group of the Parinæ, inasmuch as they have spotted young like the Turdinæ. In other respects they resemble typical Tits in having straight and somewhat conical bills, rounded wings, with a small bastard primary, and scutellated tarsi.

The geographical range of the genus extends over the whole of the Palæarctic Region and the extreme north of the Oriental Region. There are about a dozen species in the genus, two of which breed in Europe. One of these is a resident in the British Islands, and the other an accidental visitor. A third species (*Accentor montanellus*), which breeds in Northern Siberia, is occasionally seen in Eastern Europe.

The food of the Accentors is principally insects in summer and small seeds in winter. They build their nests sometimes in bushes, sometimes on the ground, and sometimes in holes in rocks. The eggs, so far as is known, are always blue and unspotted.

ACCENTOR MODULARIS.

HEDGE-SPARROW.

(Plate 12.)

Curruca sepiaria, *Briss. Orn.* iii. p. 394 (1760).
Motacilla modularis, *Linn. Syst. Nat.* i. p. 329 (1766); **et auctorum plurimorum** —(*Bonaparte*), (*Temminck*), (*Degland*), (*Gerbe*), (*Naumann*), (*Newton*), (*Dresser*), &c.
Sylvia modularis (*Linn.*), *Lath. Ind. Orn.* ii. p. 511 (1790).
Prunella modularis (*Linn.*), *Vieill. An. Nouv. Orn.* p. 43 (1816).
Accentor modularis (*Linn.*), *Koch, Syst. baier. Zool.* i. p. 196 (1816).
Curruca eliotæ, *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 24 (1817).
Tharrhaleus modularis (*Linn.*), *Kaup, Nat. Syst.* pp. 137, 192 (1829).

The Hedge-Accentor, or Hedge-Sparrow, is another of those birds which, from its trustful habits, is familiar to all. It is one of the most widely distributed of our native birds, being found throughout the British Islands except in the barest and most barren situations. It is found on all the Hebrides, except a few of the most desolate islands; in the Orkneys it is of only accidental occurrence, chiefly in winter; and in the Shetlands but one specimen has with certainty been seen—in October. In the Channel Islands the bird is, according to Mr. Cecil Smith, as common as in England, and resident. Dresser's statement that the Hedge-Sparrow was obtained in Persia is a mistake. There is no record of its occurrence east of the Ural Mountains and the Caucasus. None of the various species of Accentor found in Persia, Turkestan, the Himalayas, Siberia, and Japan are very nearly allied to our bird. The Persian bird appears to be quite distinct from the Japan bird; and the examples of the latter figured by Gould in his 'Birds of Asia,' and now in the British Museum, seem quite distinct from the *A. rubidus* of Temminck and Schlegel figured in the 'Fauna Japonica.' Neither of these two species has yet been named by ornithologists.

The Hedge-Sparrow breeds throughout Europe, except in the extreme north. In Scandinavia its range extends as far as the limit of forest-growth (about lat. 70°). In West Russia a few wander as far as Archangel (about lat. 64°), and in the Ural Mountains it occurs as far north as lat. 60°. Towards the northern limit of its range it is a summer bird of passage, only remaining during the winter in rare instances. In South Europe it is principally a winter visitant; but in Spain, Italy, Asia Minor, Palestine, and the Caucasus a few retire to the mountains to breed. In North Africa it is only known as an occasional straggler in winter. As a rule, the

Hedge-Sparrow inhabits well-cultivated districts, and frequents groves, shrubberies, and hedges, and especially gardens. From its unobtrusive habits and its sombre dress it attracts little attention; but there is no mistaking it when seen, as it shuffles along under the evergreens, as if anxious to elude notice. At all seasons of the year it may be found in its usual haunts, drawing nearer to the houses in winter, and often feeding on the crumbs scattered for the Robin and the Sparrows. In the farm-yards it is frequently seen hopping about the ground near the barndoor, or gliding in and out amongst the heaps of old wood. It often enters the cart-shed, and searches for insects under the carts and other farm implements; manure-heaps are also favourite haunts, where it may generally be seen amongst the Sparrows. The Hedge-Sparrow is a bird of the undergrowth and bushes; it rarely mounts into the higher branches, and is incessantly in motion in a half Chat-, half Tit-like manner. It passes through the tangled hedgerows more like a sombre shadow than a bird, and will hide under the broad leaves of the cabbages in the garden. In autumn many Hedge-Sparrows frequent the turnip-fields—not in a sociable way, but here and there you may flush them from the cover or catch a hurried glimpse of them as they glide under the leaves; for the bird is one that only takes flight when absolutely compelled. The Hedge-Sparrow is one of the latest birds abroad in the evening. Its low complaining call-note is often heard when the bird is lost in the evening gloom; and in the shrubberies it is one of the last birds to seek a roosting-place.

The Hedge-Sparrow must be classed with the Robin and the Wren as a perennial songster; but it is only in well-sheltered districts that its music is heard regularly through the winter, nor is it ever so free a songster as those two little birds. A lull in the wintery storm, or a few hours' genial sunshine, even in midwinter, will not unfrequently cause it to mount to the topmost twig of a hedgerow to sing. There is nothing very attractive in its song; but it always sounds lively and cheerful, though somewhat plaintive: it is not unlike the first half of the song of the Wren. Its call-notes are low, and uttered in a peculiarly plaintive complaining tone. The Hedge-Sparrow pairs very early in the season. About Christmas the birds congregate in little parties of perhaps five or six—a peculiar habit, never observed in this species except at mating-time. The birds are then unusually clamorous, show a pugnacious disposition, and often chase each other through the branches with every sign of anger. This lasts but a short time; and afterwards they are almost invariably seen in pairs until the breeding-season.

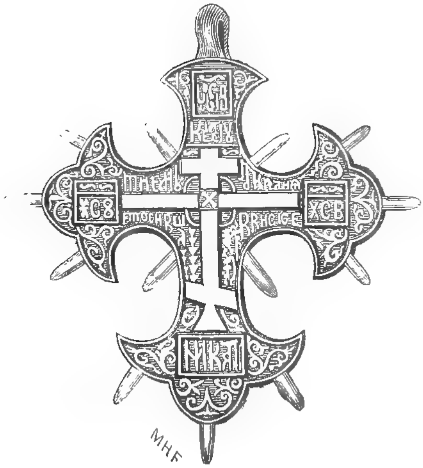
This interesting little bird is one of the earliest to begin building its nest, usually doing so in March. It is never built far from the ground; and the situations in which it is found are very varied. The thick hedgerows of whitethorn and holly are favourite places; the dense thickets of wild rose and bramble heaped together in one confused mass are also very frequently selected. Less frequently we may find it in a heap of pea-sticks, or amongst the masses of ivy growing over a wall, or even on a tree-trunk. The nest is a handsome little structure, full of rustic beauty, composed of green moss, a dead leaf or two, a little dry grass, and strengthened with a few fine twigs; moss usually forms the greater part of the nest; and it is lined with a thick warm bed of hair, feathers, and wool. It is a curious fact that in the nests of this bird, when placed amongst thorns, a large thorn often penetrates the nest, the bird making no attempt to cover it. Dixon has the following note respecting its nest:—"I watched this season the fortunes of a nest of the Hedge-Sparrow, from the time the first few twigs were laid until it contained four eggs. The nest was only a couple of feet from the ground, in a tangled mass of wild rose and bramble, felted closely with withered leaves. From some cause, which baffled all my attempts to explain it, the nest was forsaken the day after the bird commenced to sit on her four eggs. Whether she had been killed or not I cannot say; but the eggs were never sat upon again. I left them in the nest, thinking that, after all, the bird might return; and I was in the habit of looking into it each day. I was rather surprised, about a week after the bird had forsaken it, to find the nest apparently empty; and I then removed it, but was astonished to find the eggs still in the nest and a fresh lining built entirely over them. Whether this was an attempt to make a nest with little trouble by another pair of birds can only be conjectured; and as I had pulled the nest from its position, I was prevented from seeing the *finale* to this interesting circumstance." Curious sites are sometimes chosen by this bird for its nest. Gray, in his 'Birds of the West of Scotland,' mentions one which was built in a cave in the mass of rocks known as Ailsa Craig. It was placed in a ledge of the rock at the base of a tuft of hart's-tongue fern; and the floor of the cave was covered with water.

The eggs of the Hedge-Sparrow are from four to six in number, and differ very little in shape or colour. They are a beautiful greenish blue in colour, spotless and somewhat rough in texture—a character which will to some extent serve to distinguish them from eggs of the Redstart. They vary from ·82 to ·72 inch in length, and from ·65 to ·55 inch in breadth. The Hedge-Sparrow often rears three broods in the year. It is one of the earliest to breed, and also one of the latest; for fresh eggs may often be found late in July.

The food of the Hedge-Sparrow is largely composed of insects and worms, which it obtains principally on the ground; it also feeds on small seeds of various kinds. Its flight is slow and somewhat uncertain, and is rarely prolonged for any distance. It is in the habit of jerking its wings, from which it has received the local name of "Shufflewing."

The Hedge-Sparrow is a migratory bird in the northern portions of its range; and many of these little wanderers not only pass Heligoland, but reach this country. My friend Mr. Cordeaux writes to me that the bird is a regular immigrant to N.E. Lincolnshire.

The Hedge-Sparrow has the head, nape, and ear-coverts slate-grey streaked with brown; the remainder of the upper parts is reddish brown streaked with dark brown; the upper tail-coverts are unstreaked olive-brown; the wings are dark brown, margined and tipped with reddish brown; the tail is also dark brown, most of the feathers edged with light brown; the chin and throat are slate-grey, gradually shading into buffish white on the lower breast and belly; the flanks are pale brown streaked with dark brown. Bill dark brown, paler on the lower mandible; legs, feet, and claws light brown; irides hazel. The female only differs from the male in the colour of her plumage in having the head and flanks a little more spotted. Young birds have no slate-grey on the head or underparts, and are much more spotted than adults.



ACCENTOR ALPINUS.

ALPINE ACCENTOR.

(PLATE 12.)

Sturnus collaris, *Scop. Ann. I. Hist. Nat.* p. 131 (1769).
Sturnus moritanus, *Gmel. Syst. Nat.* i. p. 804 (1788).
Motacilla alpina, *Gmel. Syst. Nat.* i. p. 957 (1788); **et auctorum plurimorum**—(*Bechstein*), (*Temminck*), (*Naumann*), (*Bonaparte*), (*Degland & Gerbe*), (*Gray*), (*Giebel*), (*Macgillivray*), (*Hewitson*), (*Salvadori*), (*Severtzow*), (*Harting*), (*Bogdanow*), (*Nordmann*), (*Radde*), &c.
Accentor alpinus (*Gmel.*), *Bechst. Orn. Taschenb.* i. p. 191 (1802).
Accentor collaris (*Scop.*), *Newt. ed. Yarr. Br. B.* i. p. 296 (1873).

The Alpine Accentor is a purely accidental visitor to the British Islands. It does not appear to have ever occurred in Scotland or in Ireland. It was first recorded as a British bird by the late Dr. Thackeray, who mentions, in the 'Zoological Journal' for 1824 (p. 134), a female that was shot in the garden of King's College, Cambridge. It was obtained on the 22nd of November 1822. An example of the Alpine Accentor had, however, been previously obtained in this country in the autumn of 1817, although the fact was not chronicled until 1832, in the 'Magazine of Natural History,' vol. v. p. 288. Ten other examples have been obtained in England, chiefly in the southern counties, although one specimen has been captured near Scarborough; and Mr. Howard Saunders met with a bird of this species on one of the Welsh mountains.

The Alpine Accentor breeds throughout the mountains of Southern Europe, the Sierra Nevada in South Spain, the Pyrenees, the Alps, the mountains of Greece and Asia Minor, and the Caucasus, extending into Northern Persia. Examples from Turkestan are more chestnut on the flanks, approaching *A. nipalensis* in this respect; otherwise they do not differ in colour from European specimens. The latter species is found in the Himalayas and the mountains of Western China, being represented in South-eastern Siberia by a very nearly allied form (*A. erythropygius*) with a much more rufous rump.

I have never had the good fortune to meet with the Alpine Accentor on any of my excursions. It is therefore necessary to do as Newton, Dresser, and even Naumann have been obliged to do—compile a history of this bird from the writings of others. Naumann's information was principally supplied to him by Dr. Schinz of Zurich; and the 'Journal für Ornithologie' contains observations by Alexander von Homeyer in the mountain-range which separates Bohemia from Silesia, by Graf Wodzicki in the

Tatra Mountains and the Galician Carpathians, by Baron von Müller in the Alps, and by Victor Ritter von Tschusi in the Riesengebirge. The Alpine Accentor is a summer visitor to the grassy slopes where a brilliant arctic flora, watered by the ever-melting ice, covers the ledges of the rocks and the little plateaux amongst the boulders, between the highest limit of forest-growth and the lowest boundary of perpetual snow. Its migrations, however, are very limited. When its breeding-grounds are covered with snow it descends into the valleys, and in severe winters will sometimes wander further from home and be seen in unwonted localities. Except, perhaps, when actually engaged in the duties of nidification, it is a more or less gregarious bird; and in winter they are usually seen in small parties of ten or a dozen individuals. It is extremely tame, and allows itself to be approached within ten or twelve paces without showing alarm. It is both insectivorous and graminivorous. In spring it finds abundance of small beetles, flies, gnats, moths, ants, and their larvæ amongst the gentians, saxifrages, anemones, primulas, and potentillas which adorn its breeding-grounds; in autumn the alpine ground-fruits strawberry, crowberry, cranberry, &c. plentifully supply it with food; and in winter it feeds upon a variety of seeds, especially those of grasses of different kinds. The song is described as something like that of the Lark; and the male is said frequently to ascend thirty or forty feet into the air, and then descend again, singing like a Tree-Pipit or a Snow-Bunting. At other times they will sit motionless for a long time basking in the sun on a rock, with head drawn in, plumage puffed out, and wings and tail depressed. The call-note is a plaintive *tree, tree, tree.* They are said not to hop, but to run on the grass and on the rocks. The flight is undulating.

It is said that they breed twice in the year, about the middle of May and the middle of July; but this requires confirmation. The nest is placed on the ground, under an overhanging rock or rhododendron shrub, and is neatly finished and rather deep. It is composed of dry round grass-stalks, intermixed with fine roots and a few lichens. It is said sometimes to be lined with moss, wool, or hair. The eggs vary in number from five to six, and in size from 1·0 by ·7 inch to ·9 by ·63 inch. In colour they are unspotted pale greenish blue.

From the colour of the eggs it might be supposed that the Accentors were related to the Chats. The song of many of them is also somewhat Chat-like. In its habits the Alpine Accentor is much more Chat-like than either the Hedge-Sparrow or the Mountain-Accentor. Both these species perch freely in trees; but the Alpine Accentor, like the Chats, is essentially a rock bird, and when perched on a rock is said often to drop its head and the fore part of its body suddenly, at the same time jerking its tail and drooping its wings—a very Turdine habit.

The Alpine Accentor has the colour of the head, neck, and ear-coverts grey, indistinctly striped with darker grey; the rest of the upper parts are brown, lightest on the rump, streaked with darker brown; the wings are dark brown, with reddish-brown margins and white tips; the greater and median wing-coverts are reddish brown variegated with black and tipped with white; the tail-feathers are dark brown, with pale buff tips; the chin and throat are white, spotted with black; the breast, belly, and under tail-coverts are dark grey, shading into rich chestnut on the flanks, each feather of which is margined with pale buff. Bill black at the tip, yellowish at the base; legs and feet light brown; claws black; irides hazel. The female does not differ from the male in colour, except that her plumage is a trifle more dingy. The young birds in nestling-plumage are spotted both above and below like a young Robin, and the white throat is absent.

Genus TROGLODYTES.

The genus *Troglodytes* was established in 1807 by Vieillot, in his 'Histoire naturelle des Oiseaux de l'Amérique Septentrionale,' ii. p. 52, for the reception of the American House-Wren (*Troglodytes aedon*). Some ornithologists, with a perseverance which is almost inconceivable, have been pedantic enough not only to try and make this species the type, but to exclude the European Wren from the genus. It seems to me that there can be no doubt that Vieillot, in adopting the specific name which Linnæus gave to the European Wren for his new genus, thereby confessed that bird to be the type, though the modern idea of a "type" was unknown to him.

The Wrens are intermediate between the Creepers and the Goldcrests in the shape of the bill, which is somewhat long, slender, and slightly curved. Their wings are much concaved, and the bastard primary is very large. The tarsi are scutellated. The Old-world species have short tails; but in some of the American species the tail is as long as the wing.

The geographical range of this genus is somewhat more extensive than that of the other genera in the subfamily, being throughout the central and southern portions of the Palæarctic and Nearctic regions, extending into the extreme north of the Oriental and throughout the Neotropical regions. No fewer than twenty-four species and subspecies of this genus have been described; but probably not more than half a dozen are worthy of specific rank. One species only occurs in Europe, having a dark pluvial form on the Faroes, and represented by a pale desert form in Algeria.

The Wrens are Timeliine in their habits, skulking in underwood, and without undulation in their flight. They are partly insectivorous and partly graminivorous. They build domed nests; but their eggs are like those of the true Tits, white spotted with red.

TROGLODYTES PARVULUS.

WREN.

(Plate 11.)

Ficedula regulus, *Briss. Orn.* iii. p. 425 (1760).
Motacilla troglodytes, *Linn. Syst. Nat.* i. p. 337 (1766).
Sylvia troglodytes (*Linn.*) *Scop. Ann. I. Hist. Nat.* p. 160 (1769).
Troglodytes parvulus, *Koch, Syst. baier. Zool.* p. 161 (1816); **et auctorum plurimorum**—*Naumann, Gray, Cabanis, Lindermayer, Degland, Gerbe, Doderlein, Salvadori, Newton, Dresser*, &c.
Troglodytes europæus, *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 25 (1816).
Troglodytes punctatus, *Boie, Isis*, 1822, p. 551.
Troglodytes regulus (*Briss.*), *Meyer, Taschenb.* p. 96 (1822).
Troglodytes vulgaris, *Flem. Brit. An.* p. 73 (1828).
Anorthura communis, *Rennie, Mont. Orn. Dict.* 2nd ed. p. 570 (1831).
Troglodytes communis (*Rennie*), *Gould, Proc. Zool. Soc.* 1834, p. 51.
Anorthura troglodytes (*Linn.*), *Macg. Brit. B.* iii. p. 15, fig. 188 (1840).
Troglodytes troglodytes (*Linn.*), *Schlegel, Rev. Crit.* p. xliv (1844).

The Common Wren is generally distributed throughout the British Islands, even in the wildest and most desolate districts. It is a common bird in the most secluded of the Outer Hebrides; and even on such bare islets as the Bass and Ailsa Craig its lively song may be heard from the heather and the scanty brushwood. It ranges as far north as the Orkneys and the Shetlands, where a few breed, and is generally distributed in the Channel Islands.

Ornithologists have treated the Wren and its varieties even more capriciously than they have treated the Creeper. Sharpe, though sufficiently far in advance of his fellow ornithologists to recognize varieties under the name of subspecies, most unaccountably does not do so in the case of the Wren, but actually subdivides it into nine full species. These are nothing but climatic races. The Wren is an inhabitant of both hemispheres; and during the warm period which followed the Glacial epoch it was probably circumpolar; now it is not found anywhere so far north as the Arctic circle. Even in Scandinavia, under the influence of the Gulf-stream, it has never been recorded from any locality north of lat. 66°. It is rare at Archangel, in lat. 63°. In Siberia it has not been found north of lat. 54°, and in America not north of lat. 56°. Its southern range appears to be bounded by the Atlas mountains in North Africa, by Central Persia, the Himalayas, and Japan in Asia, and by the plateaux of Southern Mexico in America.

Distributed over such a large range of country, it meets with various climates, and varies somewhat in colour accordingly.

Troglodytes parvulus, var. *nipalensis*, is found in the Himalayas and the mountains of Western China. Examples from Darjeeling, where the rainfall is excessive, are very rufous and very dark, and represent the extreme form.

Troglodytes parvulus, var. *fumigatus,* is found in Japan and North China. Examples from the south island of Japan are undistinguishable from the paler examples from the Himalayas, whilst those from the north island are paler still.

Troglodytes parvulus, var. *alascensis,* from the Pribiloff and Aleutian islands, holds an intermediate position between the variety from the Kurile Islands and

Troglodytes parvulus, var. *pacificus,* which is found on the west of the Rocky Mountains, and leads on through

Troglodytes parvulus, var. *hyemalis,* from the east of the Rocky Mountains, a form which is generally slightly more rufous and darker than average examples of

Troglodytes parvulus, var. *borealis,* from the Faroes, or the somewhat paler typical form

Troglodytes parvulus, from Europe, which is represented by a still paler and greyer form,

Troglodytes parvulus, var. *neglectus,* in Cashmere.

Troglodytes parvulus, var. *pallidus,* from Turkestan, is the palest and greyest variety; but examples from Algeria are intermediate.

There appears to be a perfect series from *T. pallidus* to *T. nipalensis*; and the selection of any one of these to be dignified with a special name seems to be arbitrary. There is not much variation in size; but on an average the island forms, contrary to usual experience, are slightly the largest.

The Wren is a resident bird in the British Islands. So closely associated in youthful minds with the Robin, so prominent amongst the birds gathered round our doors in the winter, the Wren is every one's favourite. It is one of our most familiar birds, and will often enter houses, old sheds, and out-buildings, hopping about with tail erect, without any show of fear. But it is only in winter that the Wren is seen in any numbers near houses; for as soon as spring arrives it retires to the garden or the woods to breed. No bird, not even excepting the Tits, is more active than the Wren. It is rarely observed to remain stationary for two minutes together; it is a regular little busybody, exploring all the intricacies of the cover, occasionally pausing a second to look round, or to warble forth his little song. Ever and anon you catch a hurried glimpse of it as, crouching low with tail erect, it jerks its head up and down and seeks the deepest part of the cover. Now it twists in and out amongst the gnarled roots, or even ventures to the topmost spray of the tree for a moment, where it commences its wild joyous song. Then, as if alarmed at its own boldness, down it drops, and you lose sight of it under a tangled mass of ferns. If alarmed, the Wren will often seek safety by creeping into holes in walls, and sometimes will even bury itself amongst dead leaves. It does not appear to like the open, and rarely indeed can be driven from its cover, often allowing itself to be chased backwards and forwards until from very exhaustion it may be taken with the hand.

The Wren is a perennial songster. With the exception of a few weeks in early autumn, during the moulting-season, its loud carol may be heard at all times of the year. In spring, when all nature is full of life and vigour, the Wren's wild lay is prominent amongst all the bird-songs, as it pours from the little creature buried and unseen in the dense growth of sprouting ferns, of anemones, and graceful bluebells. In summer he warbles at all hours of the day as he hops restlessly through the cover, and cheers his sitting mate. In autumn, amidst the showers of falling leaves, the Wren's melody is almost the only bird-music we hear; and in winter his song is just as cheerful amongst the icicle-draped roots and snow-covered branches of our islands as amongst the ruins of the Colosseum at Rome, in the brilliant sunshine of an Italian winter sky. The song of the Wren is remarkably loud for the size of the bird, and is composed of a series of jerking notes with a few beautifully sweet modulations, followed by a rapid trill, the whole abruptly terminated as though the bird had been frightened. Its call-notes are a grating *tit-it-it*, loud, and uttered in quick succession, becoming more rapid should it be alarmed. The Wren rarely sings from the high branches; and often its pleasing strains are commenced as he flits along, to be finished when he has reached a perching-place.

Although the Wren pairs as early as the beginning of March, we rarely find its nest until the latter end of April. The Wren is almost universal in its choice of breeding-grounds; for wherever tangled vegetation occurs of sufficient density to afford it the required seclusion its nest may be looked for. It may be found in the deepest woods, the tangled hedgerows and fences, in gardens and plantations, and even on the barren moors wherever a thicket or a few bushes overgrown with brambles relieve the monotony of the waste. Many of the Wren's breeding-haunts are also similar to those of the Dipper—by the sides of rapid flowing streamlets where vegetation is luxuriant and suitable rock-crevices abound. The site for the nest is sometimes far under overhanging banks amongst the gnarled roots of trees; at others it is in the ivy growing on trees and walls, and is frequently in bushes. Dixon has often known its nest built in a drooping yew-branch, and once found it hanging suspended from an elder tree over a stream. Another situation in which to look for its nest with tolerable certainty is amongst thick brushwood, such as roses and brambles, amongst whose trailing branches the withered leaves have been driven in large quantities by the wintry blasts. Here the little Wren will build a nest which almost completely defies detection. Numerous, indeed, are the instances recorded of this bird selecting the most curious situations. It has been known to choose the inside of a shed; and, stranger preference still, Stevenson, in his 'Birds of Norfolk,' mentions a nest that was built amongst the leaves of a Savoy cabbage. In fact it is almost as eccentric in this respect as the Robin. The materials employed in the construction of its nest vary according to the peculiarities of the site selected; but the outside at least is generally made of one material alone. Thus, when the nest is in a haystack, the outside of the nest is made of dry grass; when in bushes and brambles full of dead leaves, the latter material is the only one selected; when placed in a moss-covered stump, green moss is chosen; and should the trunk be covered with lichens, they will be utilized. Some of the most beautiful Wrens' nests which I have ever seen have been composed principally of dead fronds of bracken. The Wren builds a domed nest, not semi-domed like the nests of the Willow-Warbler, but completely domed like those of the Dippers. As often as not, the outside is composed of moss and withered leaves, the latter in great number. Round the hole which admits the parent birds are woven straws, which also do much to strengthen the whole structure. The inside is lined with fine moss, hair, and a large quantity of feathers; but these materials are not always found. Although so loosely put together, the Wren's nest is a marvel of architectural skill. When we bear in mind that leaves and moss form its chief materials, and consider the method by which these two substances (ill adapted, one would think, for weaving-purposes) are formed into such a compact cradle, we cannot but pause in admiration before its little home. When in the branches, the nest is only slightly attached to them, and very few twigs are interwoven with the materials of the nest. Elaborate, indeed, is this beautiful structure, and upwards of thirty times more bulky than the little builders. It sometimes takes a fortnight to complete it; and the female bird alone is the builder, the male sometimes conveying the greater part of the materials. In some cases the birds are very much attached to their nesting-site. Dixon has removed their nest as many as four times; but so attached were the little creatures to the home of their choice, that they persisted in building fresh structures in the same place.

The eggs of the Wren vary from four to six, and even eight or nine in number. Clutches of still larger numbers are on record, but are very exceptional. They are pure white in ground-colour when blown, with a few red spots usually congregated round the large end of the egg in a zone. Occasionally they are entirely without markings; and sometimes the spots are evenly distributed over the egg. In form they differ considerably, some being almost round, others more elongated. They vary in length from ·75 to ·65 inch, and in breadth from ·55 to ·48 inch.

By imitating closely the surroundings of her nest by using materials similar in colour, the Wren usually provides for its safety; and most effectually are her wiles exercised. Professor Newton, however, states that this prudence is not always shown; and gives us an instance of a nest of this bird which was built year after year in a hole in a wall, where the bright green moss with which it was made was very conspicuous against the blocks of white chalk. I have frequently observed the same of the nesting of the Dipper; but in both cases its very conspicuousness was most probably its safety. Although exposed thus, they escape detection, because they do not look like nests, but resemble closely large masses of withered fern-fronds which here and there stud the rocks.

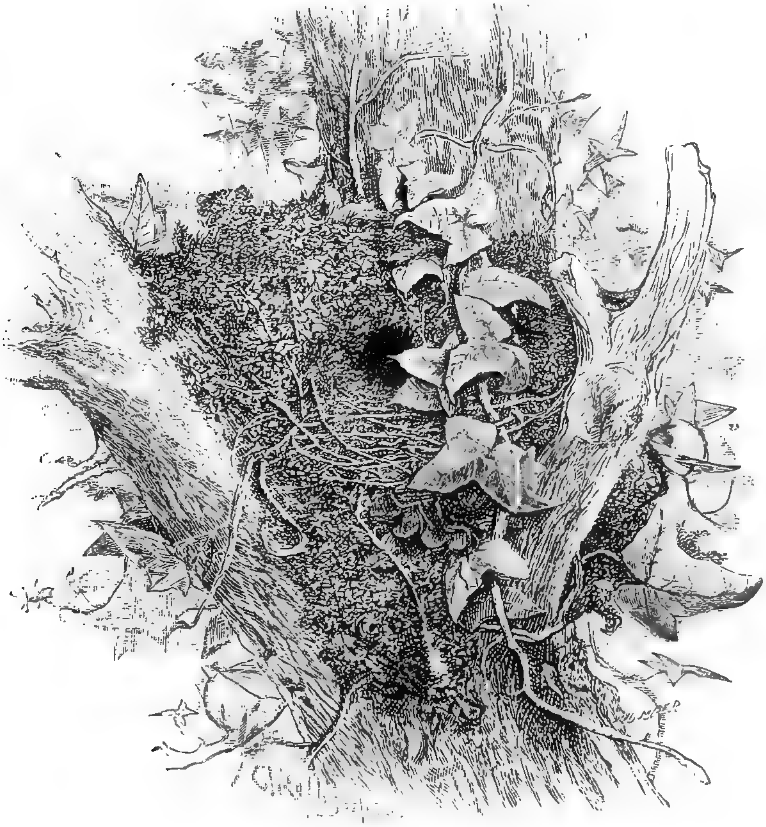
Another very curious fact connected with the Wren's nesting economy is the number of unoccupied dwellings of this species which are so frequently observed, and are widely known as "cock-nests." Most country people, and not a few scientific naturalists, assert that these nests are either made for the male bird's reception, or that they are for the purpose of sheltering the birds during the inclement winter season. The explanation of this singular habit is still unknown, although many ingenious theories have been offered.

The food of the Wren is composed largely of insects; and the bird may often be seen near ants' nests searching for their eggs. In autumn it will also eat fruit; and Macgillivray states that he has found small seeds in its stomach. This fare is also varied with the crumbs and small scraps thrown out in the winter for the Robins and Sparrows; for the Wren is almost sure to make his appearance at these gatherings and share the meal with them.

Many erroneous statements have been made as to the manner and the place in which the Wren roosts during winter. It is said that numbers of these birds will huddle together for warmth in holes. The Wren roosts, like many other small birds, in the dense evergreen, amongst ivy, and not unfrequently in the sides and amongst the thatch of haystacks. At no season of the year are Wrens gregarious. Perhaps the only time when they are seen in companies is when the young have just quitted the nest and are being as it were started in life by their parents. But this only lasts for a few days, and then, until the following breeding-season, the Wren is one of the most solitary of birds.

The custom of hunting the Wren in Ireland, the Isle of Man, and the south of France, on certain days has already been dwelt upon by many writers; and as the subject more concerns the antiquary than the ornithologist, it may be dismissed without further comment, beyond a reference for the curious reader to such authorities as Thompson ('Birds of Ireland') and Brand ('Popular Antiquities').

The European form of the Wren has the general colour of the upper parts dark rufous-brown, darkest on the head and nape, brighter on the wings and tail, and barred from below the neck (including the wings and tail) with dark brown. The upper tail-coverts have a few half-concealed spots of white; and the greater and lesser coverts have a small white spot at the tip, which form a double wing-bar; the primaries are also barred with whitish; above the eye is a buffish-white streak. The underparts are greyish brown, becoming rufous on the flanks, belly, and under tail-coverts, which are barred with dusky brown. Bill dark brown above, paler below; legs, feet, and claws light brown; irides dark brown. The female is smaller than the male, and not quite so rich in colour. Young birds resemble their parents; but the bars on the wings, tail, and belly are not so distinct, and the underparts are a little more rufous.



WREN'S NEST.

Genus CERTHIA.

The genus *Certhia* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 184. Of course he did not indicate any type; but subsequent ornithologists have removed the other twenty-four birds which Linnæus associated with the European Creeper into other genera, leaving that bird as the type. As it is the first species in his genus, and is also the *Certhia certhia* of Brisson, no fault can be found with the result.

The Creepers as thus restricted are somewhat aberrant members of the subfamily Parinæ. Sclater and Salvin, guided by ornithological instinct, place the family "*Certhiidæ*" between the "*Paridæ*" and the "*Troglodytidæ*" amongst the "OSCINES DENTIROSTRES," in spite of their having no notch in the bill. Sharpe, trying to avoid the conflict of logical with ornithological instinct, raises the genus *Certhia* and its allies into a group "CERTHIOMORPHÆ," to which he assigns even a higher than family rank. To such extremes does the old superstition of the importance in classification of the form of the bill lead its votaries.

In the genus *Certhia* the bill is long, slender, and curved, like that of a Sun-bird, whilst the tail is rounded, with the feathers stiff and pointed, like that of a Woodpecker. In their rounded wings, small bastard primary, scutellated tarsus, and large feet with well-developed hind toe, the species of this genus are typical Parinæ.

The geographical range of the genus is throughout the central and southern portions of the Palæarctic and Nearctic regions, extending into the extreme north of the Oriental and Neotropical regions. The genus only contains three species, all more or less divisible into subspecies. One species only is found in Europe, which is a resident in our islands.

The Creepers feed almost entirely on insects, and are intermediate in their habits between the Tits and the Woodpeckers. In the position and construction of their nests, and in the colour of their eggs, they resemble the former.

CERTHIA FAMILIARIS.

COMMON CREEPER.

(Plate 11.)

Certhia certhia, *Briss. Orn.* iii. p. 603 (1760).
Certhia familiaris, *Linn. Syst. Nat.* i. p. 184 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Naumann, Temminck, Gray, Bonaparte, Degland, Gerbe, Newton, Dresser,* &c.
Certhia fusca, *Barton, Fragm. Nat. Hist. Penn.* p. 11 (1799).
Certhia americana, *Bonap. Comp. List B. Eur. and N. Amer.* p. 11 (1838)*.

The unassuming little Creeper is one of the smallest of our British birds. It is generally, though locally, distributed throughout the wooded districts of Great Britain and Ireland, occasionally found in the Orkneys and Shetland, but apparently absent from the Outer Hebrides and Western Isles. It is found in all the Channel Islands, probably excepting Alderney. It is a resident bird, but occasionally turns up at Heligoland on migration; and its occurrences on the Orkneys and Shetlands are probably those of Scandinavian birds driven westwards by excessive cold or gales.

The Common Creeper may almost be considered a circumpolar bird, though it has evidently retreated southward as the cold in the Arctic regions has increased. In Western Europe it appears to range to about 63° N. lat., in Eastern Europe to about lat. 60°. In Siberia it has not been recorded from further north than lat. 57°; whilst on the American continent, where the severity of the Arctic climate is not tempered by a gulf-stream, it does not range beyond lat. 50°. In the south it frequents the pine- and cedar-forests of Algeria, and has once been recorded from Tangiers. It is also found in Asia Minor, Transcaucasia, Turkestan, Cashmere, North China, and Japan. In America it is found as far south as Guatemala. With such a wide distribution considerable local variation must be expected; and consequently the Common Creeper has been divided into several species, varying in colour. These variations, however, appear to me climatic rather than geographical. The palest form appears to be that found in Central Siberia. Examples from the Amoor are slightly more rufous, but not quite so much so as examples from North China, Japan, and Asia Minor, which appear to approach the eastern North-American form. In western North America the Creepers are still more rufous, and are undistinguishable from British and Central European examples, the more rufous individuals of which are again scarcely distinguishable from the palest examples from Mexico and Cashmere, which latter are tropical forms, much darker on the upper parts, much more rufous on the rump, and somewhat darker on the flanks. Modern ornithologists, fettered by the binomial system, and biased by the notion of geographical regions, are obliged to be alternately lumpers and splitters, according to the hemisphere with which they have to deal, instead of simply recording the facts of nature. In the present case the Old-world tropical variety of the Common Creeper has been called *Certhia nipalensis,* and has been separated from the New-world tropical variety, which has been called *Certhia mexicana,* whilst the far more distinct semiarctic forms *Certhia familiaris* and *Certhia scandulaca* have been confounded together, because they are both Palæarctic. The Mexican variety of the Common Creeper may, however, be usually distinguished from the Himalayan variety by having the grey of the underparts extending further on the breast.

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* The above is the synonymy of the typical or temperate form, which is the only one found in our islands. The synonymy of the Arctic or pale form is as follows:—

CERTHIA FAMILIARIS, var. SCANDULACA.

Certhia scandulaca, *Pallas, Zoogr. Rosso-Asiat.* i. p. 432 (1826).
Certhia nattereri, *Bonap. Comp. List B. Eur. and N. Amer.* p. 11 (1838).
Certhia costæ, *Bailly, Bull. Soc. Hist. Nat. de Savoie*, Jan. (1852).
Certhia hodgsoni, *Brooks, Journ. As. Soc. Beng.* xli. pt. 2, p. 74 (1872).

The synonymy of the tropical or rufous form is as follows:—

CERTHIA FAMILIARIS, var. NIPALENSIS.

Certhia nipalensis, *Hodgs. fide Blyth, Journ. As. Soc. Beng.* xiv. p. 582 (1845).
Certhia mexicana, *Gloger, fide Reich. Handb.* i. p. 266 (1851).
Certhia mandelli, *Brooks, Journ. As. Soc. Beng.* xlii. pt. 2, p. 256 (1873).

Hodgson never distinguished between *C. nipalensis, C. discolor,* and *C. himalayana.* His types in the British Museum of *C. nipalensis* (no. 598) are some of them *C. discolor* and others *C. himalayana.* I cannot find any drawing of a *Certhia* in his MSS. in the British Museum; but I have a copy (made by my friend Mr. Brooks) of a drawing in the Hodgson MSS. in the possession of Mr. Hume, which undoubtedly represents *C. discolor.* As, however, Hodgson appears never to have published his name, it cannot now be used for either of the species with which he was acquainted, but must be applied to the third species, which will stand as *C. nipalensis,* Blyth, Jerdon, Hume, &c., *nec* Hodgson *nec* Brooks.

There are other local variations in the Common Creeper; for example, the Creepers of South Europe in the Pyrenees and the Alps are much paler than those found in the valleys; and in all parts of its distribution small examples occur, generally having the hind claw somewhat shorter than usual, which has given rise to the term *C. brachydactyla,* which many continental ornithologists consider a good species: these latter birds are probably immature. In Turkestan and India there are two near allies of the Common Creeper which appear to have become good species, although each of them is divisible into two subspecies. *C. himalayana* from the Himalayas, and its long-billed pale form *C. tæniura* from Turkestan, may always be distinguished at a glance by their barred tails. The other, *C. discolor,* with a brown throat and breast, and its allied form *C. stoliczkæ,* with a white throat, both from the Himalayas, are distinguished by their long rufous tails.

This engaging little bird, from the nature of its haunts, its sombre dress, and unobtrusive ways, is one that is too often overlooked. The Creeper, like the Woodpeckers, is only found in well-timbered districts. It is most common in old forests, where the trees are large, aged, and decayed, and not too close together. It is very partial to large parks thickly studded with fine old trees; but sometimes it is met with away from these localities, in orchards and gardens, and more rarely in the vicinity of old sheds and buildings. But these places are only visited by the Creeper now and then; his home is in the woods.

The Nuthatch has the bill of a Woodpecker; but the Creeper has the tail of that bird. The stiff pointed feathers are of the greatest use in ascending the perpendicular trunks of trees. The tail is always depressed, so that the points of the feathers touch the bark; and thus it forms a prop or third leg, most useful in ascent, but useless in descent. We therefore find that the Creeper, like the Woodpecker, but unlike the Nuthatch, ascends the trunks with the greatest ease, but is rarely, if ever, seen head downwards. He will often commence his operations within a few inches of the roots of a tree, and, working round and round, slowly traverse the whole stem and many of the larger limbs ere he drops down to the foot of another tree to renew his labours. How quickly he passes over the rough and lichen-covered bark, more like a mouse than a bird! He will thus go perhaps for about a yard with wonderful speed. Then for a few moments you will lose sight of him as he traverses the other side of the trunk, and you mayhap think he has departed; but after a few moments his sharp little head pops round, and you catch a glance of his silky white underplumage as he pauses for a moment pecking vigorously away at an insect he has discovered in one of the chinks of the bark. During the whole time he is on a tree he rarely uses his wings at all, but creeps about from branch to branch and then to the trunk, until, satisfied that no more food can be found, he passes on, uttering a feeble little *cheep-cheep,* to another tree, where precisely the same operations are repeated. To a great extent he is a wary bird, although not what we can call a shy one. You have but to keep still and be careful not to alarm him, and he will continue to feed just as freely as though you were not there. Sometimes he is seen upon the ground (but this is not often), searching amongst the vegetation at the foot of the tree; and he may also be observed to explore dead branches lying on the ground. He may also be noticed occasionally on the stacks of wood piled in the forest to be burnt for charcoal; and in these situations his actions put you in mind very much of those of the Wren. According to Naumann, the Creeper sometimes visits the ground in winter in those places where the sun has melted the snow, and searches amongst the moss and coarse grass for its insect food, and possibly for the small seeds which this observant naturalist states are sometimes found in its stomach. He also states that the bird may be observed, usually in the morning and evening, by the side of watercourses and ditches, either for the purpose of drinking or of bathing itself.

In winter the Creeper is often found in company with Goldcrests and Tits. When I was wandering about the woods of Southern France last winter, I noticed that in almost every flock or party of Tits we came across a Creeper was in their company—the Tits obtaining their food from the twigs and buds, whilst he sought for his fare in the clefts and crevices of the bark of the trunk. At Bayonne, in the plantation between the railway-station and the river, Creepers were commoner than I had ever seen them before. I must have seen at least a dozen birds. I have generally observed them as a comparatively silent solitary pair amongst a noisy flock of Tits. Here they were chasing each other from tree to tree, sometimes on the thick trunks, but as often on the slender branches; and all the time they were making the plantation quite noisy with their loud shrill cry of *cheet-cheet*. This (9th of March) was evidently their pairing-season; and their habits seemed quite altered for the occasion. The Creeper cannot be called a gregarious bird; it is a social one; and its sociability is only to be observed in the nonbreeding-season. The song of the Creeper is only rarely heard, usually in March and April, and puts one in mind of the notes of the Marsh-Tit, and is compared by Mr. Gray to the song of the Goldcrest.

The breeding-season of the Creeper commences in April; and its nesting-site is somewhat varied. A site is usually chosen on some decaying tree, where the thick bark has peeled away from the trunk for some distance and left a hollow space behind in which the bird can build its nest. Less frequently it will choose a site in some crevice in a wood-stack; and Stevenson, in his 'Birds of Norfolk,' publishes a note from the pen of Mr. Norris showing that the bird will sometimes build in a suitable hole in a shed or outbuilding. The nest is a handsome little structure. There is a rustic beauty about a Creeper's nest which few others possess. The crevice behind the bark which the bird usually selects is often too large for the nest itself; and the superfluous space is filled up with a quantity of fine twigs, chiefly of beech and birch. Round the edge of the nest is artfully woven a series of the finest twigs; and the lining is made of roots, grass, moss, and sometimes feathers. But the chief characteristic of the Creeper's nest is the lining of fine strips of inside bark which is probably invariably there. The Creeper rears two broods in the year, according to Naumann; but the second brood is not so large as the first, usually of from three to five. The eggs of the first clutch are from six to nine in number. They are, when blown, pure white or creamy white in ground-colour, rather richly marked with brownish red spots, and with a few greyish underlying markings. They differ considerably in the amount and arrangement of the markings; but it will usually be noticed that all the eggs in one clutch are very similar. In some clutches the spots are confined to a zone round the large end of the egg; some are very rich in colour, others pale. In other clutches this zone is almost confluent; whilst in others the markings are few, and composed of very deep-reddish-brown spots almost like those on the egg of the Chiffchaff. They vary in length from ·7 to ·58, and in breadth from ·5 to ·45 inch.

The food of the Creeper is composed principally of the insects which lurk in the crevices of the bark. Spiders are also a favourite morsel with the bird. Its flight is undulating, and not very rapid.

The typical form of the Creeper has the general colour of the upper parts dark brown, streaked with rufous-brown and buffish white, paler on the rump and darkest on the head; the wing-coverts are brown, tipped with pale buff; the wings are dark brown, barred with paler brown, and the secondaries are tipped with dull white; the tail-feathers, which are stiff and pointed, are reddish brown, with yellow shafts. The colour of the underparts is silvery white, suffused with buff on the flanks and under tail-coverts. Bill dark brown above, pale brown below; legs, feet, and claws brown; irides hazel. The female does not differ in colour from the male. Young birds closely resemble their parents, but the bill is much shorter and almost straight.

Genus TICHODROMA.

Both Brisson and Linnæus included the Wall-Creeper in the genus *Certhia*. In 1811 Illiger removed it and established the genus *Tichodroma* for its reception in his 'Prodromus systematis Mammalium et Avium,' p. 210. As this was the only species known to Illiger, it must therefore be the type.

The peculiar style of coloration of this species is a sufficient generic distinction to separate it from the allied groups of *Certhia* and *Sitta*. From *Certhia* it may at once be distinguished by the tail-feathers, which are rounded and soft, not pointed, and from *Sitta* by its slender beak; and from both of these genera it also differs in having the wing-coverts and part of the primaries rich crimson. The bill is long, slender, and somewhat curved; the tail is rounded; the wings are long and broad; the gape is not furnished with any rictal bristles; the tarsus is scutellated; and the feet are armed with strong claws, to enable the bird to firmly grasp the rocks.

But one species of Wall-Creeper is known. It is confined to the southern portions of the Palæarctic Region, in the west not crossing the Mediterranean, but in the east encroaching upon the Oriental Region in the Himalayas and China. It appears to have only twice wandered as far as the British Islands.

The Wall-Creeper is closely allied to the true Creepers (*Certhia*), and appears to bear the same relation to that genus as the Rock-Nuthatches do to the Tree-Nuthatches. Unlike the true Creepers, it frequents rocks and mountain-ranges, searching for its food in the clefts and fissures and in the crevices of walls. Its habits, food, nest, &c. will be fully described in the following article.

TICHODROMA MURARIA.

WALL-CREEPER.

(PLATE 18.)

Certhia muralis, *Briss. Orn.* iii. p. 607 (1760).
Certhia muraria, *Linn. Syst. Nat.* i. p. 184 (1766); **et auctorum plurimorum**—*Gmelin, Latham* (*Degland*), *Gerbe*, (*Gray*), (*Bonaparte*), (*Dresser*), &c.
Tichodroma muraria (*Linn.*), *Illig. Prodr.* p. 210 (1811).
Petrodroma muraria (*Linn.*), *Vieill. N. Dict. d'Hist. Nat.* xxvi. p. 106 (1818).
Tichodroma phœnicoptera, *Temm. Man. d'Orn.* i. p. 412 (1820).
Tichodroma europæa, *Steph. Shaw's Gen. Zool.* xiv. pt. i. p. 187 (1826).
Tichodroma phœnicoptera, *Temm.*, v. subhemalayana, *Hodgs. in Gray's Zool. Misc.* p. 82 (1844).
Tichodroma nepalensis, *Bonap. Consp.* i. p. 225 (1850).
Tichodroma muralis (*Briss.*), *David & Oust. Ois. Chine*, p. 88 (1877).

From the evidence to be obtained bearing upon the subject, there can be little doubt that this charming bird has a remote claim to be included with the species that occasionally wander from their natural habitat to our islands. So long ago as 1676 Willughby and Ray stated that the bird was said to have occurred in this country; but as their evidence was not from personal observation, or from that of any specified authority, it must be accepted with doubt. However, as stated by Mr. Bell ('Zoologist,' 1875, p. 4664), Mr. Marsham, of Stratton Hall, in Hampshire, an accurate and observant naturalist and a Fellow of the Royal Society, in a letter to his correspondent, Gilbert White, dated October 30, 1792, writes:—"My man has just now shot me a bird which was flying about my house. I am confident I have never seen its likeness before. But on application to Willughby I conclude it is the Wall-Creeper or Spider-catcher. I find he had not seen it in England. It is very beautifully coloured, though the chief is cinereous; but the shades of red on the wings, and the large spots of white and yellow on the quill-feathers are uncommonly pleasing." In the 'Zoologist' for 1876 (p. 4839) a second specimen is recorded from Lancashire by Mr. F. S. Mitchell. He writes:—"On the 8th of May, 1872, a fine specimen of this continental species was shot at Sabden, a village a few miles from here, at the foot of Pendle Hill; and as I am not aware of its ever having been noticed before in this country, I send below the particulars. It was seen flying about by itself—its bright colours drawing the attention of a lot of mill-hands—did not appear to have a mate, and was at length shot by a man named Edward Laycock, who took it to Mr. W. Naylor, of Whalley, an accomplished naturalist, and who has for many years been President of the Accrington Naturalists' Society.

Large slugs had been used to kill it, and it was so mangled that Mr. Naylor could not determine the sex, and had great difficulty in making it all presentable; however, it was managed somehow, and remains in his possession still." Following these remarks is a description of this specimen, which places its authentication beyond all question.

The range of the Wall-Creeper is a somewhat wide one, extending across the Palæarctic Region between lat. 30° and 50°, and just entering the limits of the Oriental Region in the Himalayas and China. Probably in all portions of its range it is a resident, only leaving the higher districts in winter to retire lower down the mountain. It breeds in nearly all the mountains of Central and Southern Europe, from the Sierra Nevada in Spain, the Pyrenees, the Swiss Alps, the Vosges Mountains, Italy, Sardinia, Greece, Asia Minor, to the Caucasus. In Asia it inhabits the mountainous portions of Turkestan, Afghanistan, Cashmere, the Himalayas, and the mountains of Kansu. It occasionally wanders into Northern Germany; according to Rüppell it has been found in Egypt and Abyssinia (the only authority for the bird south of the Mediterranean); and it has been obtained in China in winter near Pekin and Foochow. Although the range of this bird is such a wide one, it does not exhibit any great variation in colour, and skins from Samarkand in Turkestan are not any paler than those from the Pyrenees, although the climate of these two countries is, as has often been shown, well adapted to produce variations in the colour of the plumage.

The haunts of the Wall-Creeper are amongst the mountains, in wild defiles and gorges, amongst the cliffs and rocks. During my visit to the Pyrenees in the winter of 1881–2 I made the acquaintance of this charming bird in the mountains near Pierrefitte. Near the highest point of the pass which we reached, and which must have been 2500 feet or more above the sea, we caught sight of the bird on the rocks. When we first saw it the sun was shining in our eyes, and all we could see was a bird flitting round an angle of the rocky cliff, and looking almost black, on its shadow side. The moment we saw the bird, however, we recognized it as the species we were in search of. The flitting, uncertain, bat-like or butterfly-like flight was most peculiar, and arrested the attention at once. The bird disappeared up the cliff on a wall of an old road above. Finding no trace of it beyond, we turned back and caught sight of it again flying down from the wall to the face of the cliff. As it flew it showed so much white on the wing that for a moment we thought it was a Lesser Spotted Woodpecker; but when it alighted on the face of the cliff head downward, and began to proceed in a somewhat zigzag course by a series of jerks, we should have been quite sure of the identity of the species even if the red on the wings had not been visible in the sunshine. We had scarcely shot the bird when we saw its mate sitting on a projecting spur of rock. It did not seem at all alarmed, but came down from its high perch and flitted to the face of the perpendicular rock, where we brought it down with a half-charge of dust-shot. We did not hear either bird utter any note.

Canon Tristram frequently met with this bird in his ornithological wanderings through Palestine, and found it a permanent resident in the rocky defiles of the northern and central parts of that country. He writes:—"We never saw it in the south, where probably the cliffs are too parched and dry to supply it with its insect food. I know few ornithological sights more interesting than to watch this beautiful little creature as it flits along the face of a long line of cliff, with a crab-like siding motion, rapidly expanding and closing its wings in a succession of jerks, and showing its brilliant crimson shoulders at each movement. It generally works up the gorge at nearly the same elevation, with its breast towards the face of the rock, and moves close to its surface in a perpendicular position, rapidly darting forth its bill and picking out minute insects as it passes along. In a few minutes it would return down the valley again, quartering the rock in a line parallel to its former course."

The Wall-Creeper is a bird most probably united to its partner for life, and is therefore usually seen in pairs, and each season the same nesting-place is chosen. They certainly are not very noisy birds, and their call-note, according to Bailly, resembles the syllables *pli-pli-pli-pli*. Naumann compares their note to that of the Bullfinch, and also states that they have a song somewhat resembling that of the Creeper; but several careful observers affirm that they have never heard the birds utter a call-note at all. Bailly states that the bird is constantly in motion, fluttering like a butterfly from one rock to another, sometimes remaining in mid-air suspended before a cleft in the rocks. It does not climb so easily or so gracefully as the Woodpeckers and the Creepers, nor does it support itself by its tail as those birds continually do. Sometimes, according to this naturalist, the bird will also visit the branches of trees growing on the rocks in its haunts.

The breeding-season of this bird varies a little according to the situation; in some localities it commences in the latter part of April, in others not until the beginning of June. The nest is placed in the crevices of the rocks, sometimes in places quite inaccessible. A handsome nest of this bird in my collection is very elaborately built. Its chief material is moss, evidently gathered from the rocks and stones, intermingled with a few grasses, and compactly felted together with hairs, wool, and a few feathers. The lining is almost exclusively composed of wool and hair, very thickly and densely felted together. The nest is about one and a half inches deep inside, and the internal diameter is about three inches; outside it measures two and a half inches in depth and is about six inches in diameter. The eggs of the Wall-Creeper are from three to five in number, and are white in ground-colour, very finely freckled near the large end with reddish brown, and with numerous minute violet-grey underlying spots. They vary from ·8 to ·75 inch in length and from ·6 to ·52 inch in breadth.

The food of the Wall-Creeper is chiefly composed of insects which it picks from the crevices of the rocks, spiders, small beetles, and larvæ which lie concealed under the moss on rocks and stones. Bailly states also that it feeds on ant's eggs and small worms; and sometimes it catches an insect on the wing.

The male Wall-Creeper in breeding-plumage has the general colour of the upper parts slate-grey, darker on the head, and darkest on the rump; the lesser wing-coverts are crimson, the greater ones the same, but shading into brownish black at the tip; the quills are black, tipped with ashy brown, all, except the first three, crimson on the basal half of the outer web, and the second to the sixth with two large white spots; the tail is black, broadly tipped with grey, which becomes almost white on the outermost two feathers at each side. The throat and breast are black, the rest of the underparts very dark grey, the under tail-coverts tipped with greyish white. Bill and legs black; irides brown. The female in breeding-plumage is similar to the male; but the black on the throat is not so much developed. In winter plumage, in both sexes, the throat is greyish white, the head is suffused with brown, and the upper parts are lighter and browner. Young birds resemble adults in winter plumage; but the crimson on the wings is not so developed, the bill is shorter and nearly straight, and the spots on the wings are buff.

Genus SITTA.

The genus *Sitta* was defined in 1766 by Linnæus in the twelfth edition of his 'Systema Naturæ,' i. p. 177. *Sitta europæa* must be accepted as the type, though it is not the *Sitta sitta* of Brisson, a bird with which Linnæus was unacquainted. But since *S. europæa* and *S. cæsia* are only climatic races of one species, it is of no consequence.

The Nuthatches are aberrant members of the subfamily Parinæ, and may be distinguished by their large, straight, conical Woodpecker-like bills. The wing is typical, with a small bastard primary. The tail is short and even, like that of the Wren. The tarsus is scutellated, and the feet are very large.

The geographical distribution of this genus ranges throughout the Palæarctic Region south of the Arctic circle, the Oriental Region, the Nearctic Region south of about lat. 54°, and extends into the extreme north of the Neotropical Region. There are nearly twenty species in the genus; but only two are found in Europe, and one of these may be subdivided into several climatic races, of which one is a resident in our islands.

The Nuthatches are both insectivorous and graminivorous. In their habits they resemble the Woodpeckers and the Creepers more than the true Tits. Some of the species build mud nests on the rocks, whilst others build in holes in trees, plastering the entrance only with mud. The eggs are white spotted with red.

SITTA CÆSIA.

NUTHATCH.

(PLATE 12.)

Sitta sitta, *Briss. Orn.* iii. p. 588 (1760).

Sitta cæsia, *Wolf, Taschenb.* i. p. 128 (1810); **et auctorum plurimorum**—*Gray, Bonaparte, Degland, Gerbe, Newton, Dresser*, &c.

Sitta affinis, *Blyth, Journ. As. Soc. Beng.* xv. p. 288 (1846).

Sitta europæa, *Linn. apud Latham, Montagu, Macgillivray, Bewick, Fleming, Gould*, &c.

In the southern and central counties of England the Nuthatch is a common and fairly well-known bird; but it becomes much rarer and more local in the northern counties. It breeds, however, sparingly, even in the extreme north of England. In Scotland it is very rare; Mr. Gray only mentions three instances of its recent occurrence there:—one, killed in a garden near Dunse in Berwickshire in 1856; another, shot in the summer of 1865 near Hermiston in Haddingtonshire; and a third, shot at Bressay in Shetland in 1867. The bird appears not to have hitherto been noticed in Ireland.

The Nuthatches which are the most closely allied to that found in the British Islands may be distinguished from the numerous other species in the genus by the colour of the under tail-coverts, which are white broadly margined on the basal half of each feather with rich chestnut. They are found in most parts of Europe and Asia. In such a large area they are subject to different influences of food and climate. Their enemies are probably more numerous and more important in some localities, and the necessity of their assuming protective tints in the colour of their plumage may consequently be more imperative; and the difference in the prevailing colour of their surroundings may cause a similar variation in the tints which are protective. The effects of these influences are intensified by the habits of the birds. They probably pair for life, and are generally seen in winter in pairs, which attach themselves to a gipsy-party of Tits and other birds, in whose company they search for food. Though they may cover a great deal of ground in the course of the winter, they probably never wander very far from home, and thus miss those opportunities for intermarriage with individuals of their own species from distant breeding-grounds that migratory birds, which meet in common winter-quarters and choose a fresh mate every spring, enjoy.

The British Nuthatch is undistinguishable from the Nuthatches which inhabit Central and Southern Europe, whose range extends to the south as far as Algeria and to the east as far as Asia Minor and West Persia. In Scandinavia and West Russia the Nuthatches have almost lost the pale chestnut on the breast and belly, though they retain the dark chestnut on the flanks and the margins of the under tail-coverts. Newton and Dresser treat these two forms as good species, and give the additional characters that in the Scandinavian form (*Sitta europæa*) the colours of the upper parts are brighter and the legs are lead-coloured, whilst in the southern form (*Sitta cæsia*) the colours of the upper parts are duller and the legs light brown. It is impossible to agree with this conclusion. The colour of the upper parts of Scandinavian and South-European birds is precisely the same, though the colour of the upper parts of British examples may be a trifle duller than in those from the continent, as is the case with many other birds. A difference in the colour of the legs would be a very good character; but, unfortunately, it only exists in the imagination of the writers above named. All the Nuthatches nearly allied to our bird have the same pale brown legs and feet—a character which distinguishes them from the Rock-Nuthatches of the Palæarctic Region and the tropical forms of our Nuthatch which inhabit the Oriental Region, both of which have these parts lead-colour. The remaining character, the colour of the underparts, is equally untrustworthy as a specific distinction, since in Denmark, Pomerania, the Baltic provinces of Russia, Poland, and the Crimea, in fact wherever the ranges of the two supposed species coalesce, a complete series of intermediate forms may be obtained. Further east the variation in the colour of the Nuthatches is still continued. In North Russia the chestnut on the flanks decreases in extent, the white of the underparts becomes purer, and the size (which in the Scandinavian bird had increased from the 3·3–3·15 inches of British and South-European examples to 3·5–3·35 in length of wing) returns to the dimensions of the Southern form, until on the Ural Mountains, extending across Northern Siberia as far as Lake Baikal, the amount of chestnut on the flanks has decreased by one half, the white on the underparts of adult males has become absolutely pure, and the size has diminished until the length of wing only measures from 3·2 to 2·9. This form has received the name of *Sitta uralensis*. East of Lake Baikal our information is less complete; but there can be little doubt that the changes which take place are equally gradual, and that it is only the want of a series of skins from the intervening localities which makes the forms appear more specifically distinct. In Kamtschatka a form occurs which has been described by Taczanowski as *Sitta albifrons*. It differs in having the head and nape slightly paler in colour, and in having the feathers of the forehead at the base of the bill white instead of black. The forehead is also white at the base, and the greater wing-coverts are tipped with white. Some of my specimens from the Yenesay are somewhat intermediate; and an example in Dresser's collection from Hakodate, in the north island of Japan, approaches still nearer the Kamtschatka bird. Examples from the Amoor, the island of Askold, and

Yokohama, to which the name of *Sitta amurensis* has been given, scarcely differ from examples from the Baltic provinces: the colour of the lower breast and belly is pale chestnut; that of the throat and upper breast is a purer white; and the chestnut on the flanks is scarcely so much developed. This species is said to range as far south as North China; but in Central China and East Thibet a form occurs, to which the name of *Sitta sinensis* has been given, which only differs from South-European birds in being slightly smaller, the length of wing measuring from 3·0 to 2·9 inch.

All these various forms of the Nuthatch can only be considered local varieties of one species, being in most cases certainly, and in the others probably, connected together by intermediate forms. In comparing these forms one with another it is important to bear in mind the fact that the females are slightly less than the males, and generally have the pale chestnut on the breast and belly more strongly developed than in the male, and the rich chestnut on the flanks and under tail-coverts slightly less so. In the tropical species with dark legs, which are most nearly allied to our Nuthatch, the underparts are of a still richer and deeper chestnut, except *S. nagaensis*, which was obtained by Col. Godwin-Austen in Assam. It is somewhat remarkable that no Nuthatch belonging to this group has been found in Eastern Persia or in Turkestan.

To the casual observer the Nuthatch is a small Woodpecker, as the Swift is mistaken for a large Swallow. In both cases the superficial resemblance is very striking. The habits are the same; and if the foot differs, there is little or no difference in the form of the bill. Modern biologists tell us that these external characters are of little value in classification, that internal characters alone are reliable, and that the Nuthatch is more nearly related to the Swallow than to the Woodpecker, and that to find the common ancestors of the Woodpeckers and the Swifts the geological record (the genealogical tree) need not be searched so far back as would be necessary to discover the common ancestors of the Swifts and the Swallows. It cannot be denied that, in the struggle for existence, birds have been obliged to change their habits to accommodate themselves to the changes of climate which have taken place in the district where they have resided. The Rock-Nuthatch, so common in Greece and Asia Minor, bears so close a resemblance to our bird, that it is difficult at first to believe that its habits are so different. No character is so variable as the form of the bill, which seems to have the power of adapting itself with astonishing rapidity to the nature of the food with which it has to deal; and it is somewhat surprising that it should still be considered of so much generic importance by some writers. At the same time it must be admitted that no one can compare the results of different dissectors without coming to the conclusion that, even in what are supposed to be important internal characters, individual variation in many species is so great that there is no lack of material for natural selection to choose from, and that wherever a change could benefit the species, there does not appear to be any adequate reason why an internal change should not be as rapid as an external one. If like causes produce like effects in external characters, why not in internal characters also? Why may not the superficial resemblance between a Woodpecker and a Nuthatch, and between a Swift and a Swallow, date as far back as, or further than, the osteological resemblances between the Woodpecker and the Swift or between the Nuthatch and the Swallow? If the Picarian birds be the least-changed descendants of the common ancestors of the Picarian and Passerine birds, why may not the Woodpeckers be the least-changed descendants of the common ancestors of the Woodpeckers and the Nuthatches, and the Swifts the least-changed descendants of the common ancestors of the Swifts and the Swallows? Or is it necessary to assume that all the Passerine birds were developed from one branch only of the semi-Picarian ancestors? Is it not possible that the geological revolutions which changed the food, climate, or other surroundings of the ancestors of the Passerine birds, and was the ultimate cause of their attaining to their present high state of development, affected many of the then existing genera, and produced a rapid advance of development from several centres in parallel directions, and that after all there may be more truth in the conclusions of the casual observer than the anatomist is yet prepared to admit?

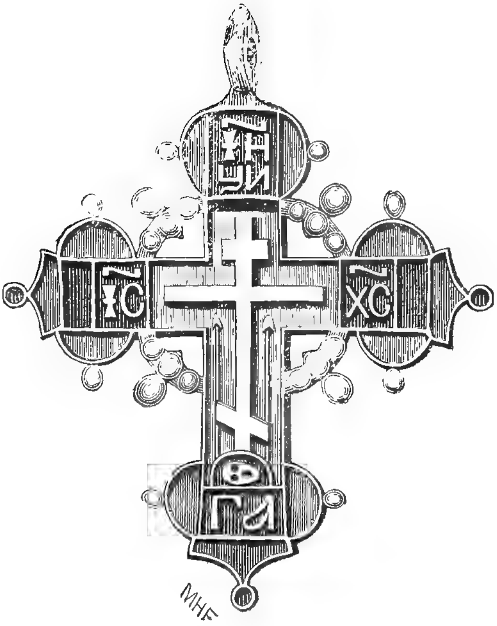
But whatever may be the genealogy of the Nuthatch, every egg-collector will agree that, in spite of its Woodpecker-like bill, it belongs to the Parinæ, together with the curvirostral Creeper. Even in its habits the Nuthatch differs widely from the Woodpeckers. Like the latter birds, the Nuthatch obtains its food almost exclusively on the bark of trees, but also, like them, seeks it occasionally on the ground. The Nuthatch, however, being furnished with a well-developed Passerine hind toe and claw, is able to run up the trunk of a tree with the greatest ease. So does the Woodpecker, in spite of his feebly developed Picarian hind toe, thanks to his having reversed the position of one of his stronger fore toes, and, at the same time, pressed his tail into the service to prevent his slipping back. But however useful the tail of the Woodpecker may be in ascending, it is of no use in descending; so the Woodpecker generally begins at the bottom of a tree and works his way up to the top, and then drops down to the bottom of the next tree and begins again. The Nuthatch, on the other hand, being independent of support from his tail, can descend with as much ease as he can ascend, and consequently flits on from tree to tree like a Tit. Another peculiarity in which the Nuthatch agrees with the Tits and differs from the Woodpeckers is that it perches freely across a twig, whilst the latter birds prefer to rest upon it with the body parallel. In its movements upon the trunk of a tree the Nuthatch is not unlike a fly on a wall. It progresses by a series of little runs, now in this direction, now in that. It seems to be quite immaterial whether the direction be up or down; indeed it seems to prefer to stop with its head down, possibly to see better who is watching it from below. It is restless and active, ever lively, and ever in motion amongst the tall forest trees. From its somewhat shy and retiring habits it is far more often heard than seen, and its shrill call-note is very frequently the only sign of its presence. The Nuthatch, as its name implies, is extremely fond of hazel-nuts. It often carries a nut to some crevice in the bank, placing it securely, and hammering at it with its strong bill until the shell is broken and the kernel obtained; and it has in many cases a favourite chink which serves it for a vice, just as the Flycatcher or the Shrike will have a favourite perch or a Falcon a regular dining-table. In time quite a heap of broken shells will accumulate beneath the tree—evidence of the bird's unwearying patience and skill. The beech-woods in autumn are the Nuthatch's paradise, if the year has been a favourable one for the mast. Beech-nuts are not so hard to break as hazel-nuts; but they are treated in a similar manner; and the bird also eats acorns, fir-seeds, the stones of the hawthorn and other fruits. The Nuthatch feeds on insects when the nutting-season is over; and it is just as diligent in its search for them as the Creepers and the Tits are. It explores not only the rugged trunk of the tree in a hurried zigzag course, but also the buds and branches; and sometimes it will pay a hurried visit to the ground to regain a fallen nut or feed upon the beech-mast under the trees.

The Nuthatch is a resident, and does not appear to wander far from its chosen haunt. In severe weather a solitary bird will sometimes make its appearance in places where it is not usually seen; and birds will also come from the woods in the filbert-season to these trees to regale themselves upon their favourite food. The call-note of this engaging little bird is a sharply uttered liquid *whit-whit*, rapidly repeated, not unlike the sound produced by striking the air with a cane. It has no song; but in the pairing-season the call-note is much louder, more plaintive, and drawn out into two syllables, *wee-it.*

Like most non-migratory birds, the Nuthatch is a somewhat early breeder, and begins to build towards the middle of April. The site of the nest is almost invariably in a hole in a tree; but other situations are sometimes chosen, as, for instance, in a hole in a wall, as mentioned by Hewitson—and, stranger still, in the side of a haystack. An example of one taken from the latter site, and now in the British Museum, is a most remarkable structure, the mass of clay connected with it weighing some eleven pounds, and measuring thirteen inches in height. The entrance to the hole usually selected is often too large for the bird's taste, and it plasters up the opening with clay, leaving a small hole for ingress. The nest, placed generally at some little distance from the entrance, is crude and simple in the extreme. Sometimes a little dead grass or a few dry leaves are gathered together into little more than what might be termed a substitute for a nest; at others a few scraps of flaky bark from the fir trees are used instead. Should the clay at the entrance to the nest-hole be broken down, the birds will soon rebuild it again; for they show a striking affection for the locality they have chosen. The eggs of the Nuthatch are from five to eight in number, and are pure white in ground-colour, blotched and spotted with reddish brown, with underlying markings of purplish grey. There are several striking varieties in the eggs of this bird; but the eggs of a clutch generally resemble each other. For instance, all the eggs in one clutch are evenly spotted over the entire surface; the eggs in another clutch have the markings almost exclusively confined to a semiconfluent zone round the large end of each egg; whilst other clutches are finely and uniformly powdered with minute specks, intermingled on the larger end of the eggs with larger and paler spots. The markings differ considerably in size; and on a few specimens fine specks of very rich blackish brown are seen, and more rarely one or two very fine streaks of the same colour. The type with the semiconfluent zone very closely resembles certain varieties of the eggs of the Greenfinch; but the pure white ground-colour and reddish instead of purplish tinge of the spots serve to distinguish them. They vary from ·85 to ·75 inch in length, and from ·6 to ·53 inch in breadth.

In confinement the Nuthatch makes an engaging and cheerful pet, as those persons who have kept them abundantly testify. But the bird must be taken young; otherwise its inherent restlessness causes it to make its cage-life one long effort to escape, which finally proves its death. So tame, however, have these birds become when brought up from the nest, that they have been known to creep over their owner's body in the same way that they do on a tree-trunk, as mentioned by Jardine in his edition of Wilson's 'American Ornithology.'

The southern form of the Nuthatch has the general colour of the upper parts, including the two central tail-feathers, the secondaries, and the margins to the primaries, clear slate-grey; from the base of the bill a black band reaches to each eye and extends behind the eye along the side of the neck; all the tail-feathers except the two centre ones are black for about three fourths of their length, broadly tipped with slate-grey, and with a white patch separating these two colours on both webs of the outermost feather and on the inner web of the next two feathers on each side. The cheeks and ear-coverts, the upper throat, and the centres of the under tail-coverts are buffish white; the rest of the underparts are buff, shading into rich chestnut on the flanks and the margins of the under tail-coverts. Bill lead-colour, paler on the lower mandible; legs, feet, and claws pale chestnut-brown; irides hazel. The female very closely resembles the male in colour; but the chestnut on the flanks is not so pronounced. In young birds the chestnut on the flanks is almost obsolete; the plumage generally duller, and the bill much paler.



Subfamily CORVINÆ, OR CROWS.

The Crows and their allies are distinguished from all the allied subfamilies, except the Sylviinæ, by having a spring moult as well as an autumn one. From the latter subfamily they are principally distinguished by their larger size; the bill is generally large and conical, though in some groups, as the Choughs, it is long and curved. The emargination of the bill is sometimes well developed and sometimes quite obsolete. The wings are rounded, the first primary being almost always more than half the length of the second. The tail is subject to great variation, being sometimes short, sometimes long, sometimes even, and sometimes rounded, and consists of twelve feathers. The feet and claws are strong, and the tarsus is scutellated. The Corvinæ are cosmopolitan, and number about two hundred species. About ten species are found in the British Islands, belonging to six genera, which may be distinguished as follows:—

a. Tail less than three fourths the length of the wing.	
a^1. Bill feathered to the base, but nostrils bare	Oriolus.
b^1. Bill feathered to the base and nostrils covered with bristles, or base of bill and nostrils bare.	
a^2. Bill black or brown.	
a^3. Throat spotted; tail black and white	Nucifraga.
b^3. Throat unspotted; tail black	Corvus.
b^2. Bill orange or yellow	Pyrrhocorax.
b. Tail more than three fourths the length of the wing.	
c^1. Tail much graduated	Pica.
d^1. Tail nearly even	Garrulus.

Genus CORVUS.

The genus *Corvus* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 155. Since Linnæus does not give us the slightest clue as to which species he considers typical, we must fall back upon Brisson, whose *Corvus corvus* is undoubtedly the Raven and the *Corvus corax* of Linnæus, which we may accept as the type.

The true Crows belong to the long-winged group of the *Corvinæ*, in which the tail is always less than three fourths the length of the wing; in the other groups, the Magpies and the Jays, it is more than three fourths the length. From the Nutcrackers they may always be distinguished by never having the tail particoloured, and from the Choughs and the Orioles by having the bill black. The bill is stout and conical; the wings are long and somewhat pointed, and the first primary is more than half the length of the longest; the tail is slightly rounded; and the tarsus is scutellated.

The geographical range of the genus is cosmopolitan, with the exception of South America, New Zealand, and most of the Pacific Islands. This genus contains from forty to fifty species and subspecies. Ornithologists have amused themselves by splitting the Crows into numerous genera, apparently with no other object than to satisfy the desire for novelty, and with no other result than to confuse the ornithological student. My friend Mr. Sharpe admits no fewer than twelve of these pseudogenera, founded upon so-called structural characters of the most trivial kind; but he informs me that he does not now think these genera can be maintained. Five species belonging to this genus are found in Europe, all of which are British, whilst three others are included in the western Palæarctic Region, being found in North Africa and Palestine.

The Crows are almost omnivorous, and are found in most localities, however bare and sterile. They are birds of powerful though rather heavy flight, and on the ground walk with ease. Their notes are harsh and unmusical. They build bulky nests of sticks, moss, roots, &c., in the branches of trees, on cliffs, and in holes in tree-trunks, walls, and rocks. Their eggs are from four to eight in number, and vary from almost white to green, and in one or two instances red, in ground-colour, spotted and blotched with green of varying degrees of intensity.

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CORVUS CORAX.

RAVEN.

(Plate 16.)

Corvus corvus, *Briss. Orn.* ii. p. 8 (1760).
Corvus corax, *Linn. Syst. Nat.* i. p. 155 (1766); **et auctorum plurimorum**—*Temminck, Naumann, Gray, Schlegel, Salvadori, Gould, Dresser, Sharpe,* &c.
Corvus maximus, *Scop. Ann. I. Hist. Nat.* p. 34 (1769).
Corvus carnivorus, *Bartr. Trav. E. Florida,* p. 290 (1793).
Corvus leucophæus, *Vieill. N. Dict. d'Hist. Nat.* viii. p. 27 (1817).
Corvus major, *Vieill. N. Dict. d'Hist. Nat.* viii. p. 27 (1817).
Corvus leucomelas, *Wagler, Syst. Av., Corvus* no. 4 (1827).
Corvus cacalotl, *Wagler, Isis,* 1831, p. 527.
Corvus nobilis, *Gould, Proc. Zool. Soc.* 1837, p. 79.
Corvus vociferus, *Cabot, Bost. Journ. Nat. Sci.* 1844, iv. p. 464.
Corvus lugubris, *Agass. Proc. Bost. Soc. Nat. Hist.* 1846, ii. p. 188.
Corvus tibetanus, *Hodgs. Ann. Nat. Hist.* 1849, iii. p. 203.
Corvus ferröensis, *Schl. Bijdr. Dierk. Amsterd.* folio, art. *Corvus,* 1858, p. 6.

The Raven, once so famous in fable, and held by the ancients in such respect as a bird of destiny, is now rapidly becoming scarce in England. Formerly it was a very common species and pretty generally distributed in all parts; but at the present day it appears to have either forsaken or been exterminated from the central parts of this country; and almost the only places where a few scattered pairs are found are the bold rocky headlands of our coasts, in districts little frequented by man, where the bird, gifted as it is with no small amount of sagacity and prudence, is able still to maintain its ground. But slowly and surely these English Ravens are fast passing away; their deserted eyries possess only historical interest; and the day is probably not far distant when it can no longer be counted as an English bird. It bred regularly in quite recent years on the cliffs at Flamborough; but now a Raven is rarely seen, and does not tarry long; it is probably only attracted to the place by memories of more prosperous days. In Scotland, however, the Raven is a fairly common bird in some parts of the mainland and adjacent islands, especially on the Outer Hebrides and the Western Isles, extending to the Orkneys, the Shetlands, and even to St. Kilda. According to Thompson it is generally distributed in Ireland in all suitable localities.

The Raven is a circumpolar bird, being found both in the Palæarctic and Nearctic Regions. In the former region it extends as far north as land occurs, both in Europe and Asia. Its southern range in Europe apparently does not reach beyond the Mediterranean, although it is a common bird in most of the larger islands; but in Asia it frequents the Himalayas. In the Nearctic Region it is found as far north as lat. 81½°, and extends southwards to Mexico, Guatemala, and possibly to Honduras. It is found in all suitable localities throughout South Russia, Asia Minor, Palestine, Turkestan, Persia, Afghanistan, and Cashmere, wintering in Scind and the plains of the Punjab. Eastwards it is found throughout the valley of the Amoor, the Ussuri, the island of Askold, and the Kurile Islands.

If we regard those birds which have the feathers of the throat long and narrow and the wings elongated (the first primary longer than the innermost secondaries, and the second primary intermediate between the fifth and sixth) as Ravens, then the nearest relation to the Raven will be *Corvus umbrinus* from Palestine, North-east Africa, and Baluchistan. This species differs from the Common Raven in having the black of the head and neck all round glossed with reddish purple instead of green or bluish purple.

The only other near allies of the Raven having the same wing-formula are :—*C. affinis* from North-east Africa and Palestine, which differs from our Raven in being much smaller, in having very long secondaries, and in having the upper nasal bristles pointed upwards; and *C. tingitanus* from North-west Africa, the Canary Islands, and Madeira, also differing in its much smaller size (although it retains the large bill of the Raven) and in wanting the hackles on the breast. In South Africa south of the Sahara and in Madagascar a Pied Raven occurs, *C. scapulatus*, with the pattern of colour similar to the *C. torquatus* of China, but with the white on the breast extending to the belly.

One of the best places in the British Islands to study the Raven's habits is the Western Isles of Scotland. Here, no matter what the season of the year, when strolling over the breezy mountain-sides knee-deep in heather you will often meet with the Raven in your wanderings, and his hoarse croak will resound amongst the rocks as he flies off to a safer retreat. Lower down the valley you may expect to meet him on the broad sheep-pastures, or searching the outskirts of the birch-woods by the side of the burns. You are almost sure to see him by the ocean, either as he sails out from his home in the tall cliffs or, more frequently, as he searches the beach for garbage thrown up by the restless waves. To view the Raven in his haunts will take you amongst the grandest mountain-scenery in our islands. He is found on the wide-stretching moors in company with the Red Grouse; he haunts the bare mountain-tops where the Ptarmigan crouch like stones amongst the rocks, and also the bare plains, where an almost boundless view can be obtained. When not so sorely persecuted, the Raven was an inhabitant of more woodland districts; and a pair was often considered the pride and the pest of the parish, generally choosing for their nesting-place some large tree, to which they had retired to breed time out of mind.

Dixon thus describes the Raven's habits in Skye:—"Next to the Crows the Raven is certainly the commonest predaceous bird one meets on these bare and sterile shores. You may see him on the large sheep-farms beating about and prying into every hole and corner in search of food. Should a lamb fall sick, or a sheep in browsing too near the edge of the cliff lose its footing and be dashed to pieces on the rocks below, the Raven is perhaps the first bird to discover the prize—the first either, on the one hand, to go and torture the poor creature until death mercifully relieves its sufferings, or, on the other, the first to speed in gluttonous haste and tear out the favourite morsels from the still warm and mangled carcass. He is everywhere. Nothing escapes his prying vision. Ever on the alert, too, you cannot approach him within gunshot, and he lazily flaps away, bearing with him too often the curses of the shepherd. See him on the 'storr' yonder, croaking dismally to his mate. Something has aroused them! It is a Peregrine speeding to her nest on the cliffs of Talliska; and the quarrelsome sable thieves sally out to resent her intrusion. But the Falcon is too busy with her own affairs, and beyond a sharp bark of anger and a quick swerve to the right she heeds them not. Now watch them both circling gracefully in mid air, their rich plumage shining brilliantly in the sun. There is a dead sheep in yonder field, decaying and putrid; and thither they betake themselves. But, ever wary and cunning, notice how they wheel above it, scrutinizing it closely, as if fearful that it may contain some ambuscade; and finally they alight some little distance away to bound forward in heavy leaps, assisted by their wings, to the tempting feast. A Herring-Gull now appears upon the scene; but the Ravens will admit of no such intrusion, and it is beaten off. See how they tear out the entrails; observe with what seeming savage haste they tug at the flesh, as though fearful every moment of being surprised at their work. You approach them a little nearer, the better to observe them, and with a croak of displeasure they are off in slow laboured flight to the rocks whence they came a short half-hour before. Then, again, on these treacherous coasts many is the lamb that meets a watery grave, and when thrown up by the waves makes a meal for the Raven. Observe him out yonder a few yards from shore following the devious windings of the coast, and searching closely for any garbage that may be cast up, ever and anon being mobbed by the small Gulls and Terns whose plumage shines so pure and brilliant against his own sable dress. In fact, wherever you may wander in these out-of-the-way solitudes the Raven will almost invariably turn up, unexpectedly it may be; but still he is there to croak at your intrusion, to engage you with his droll antics and cunning ways, or to cause you no small amount of disgust as he, mayhap, rises half stupefied before you from some decaying carcass. To my own observation the Raven is a bird very early astir in the morning; and I have heard his unmistakable croak long after darkness had wrapped the hills in gloom, and caught a hurried glimpse of his sable form as he slowly flapped along to his retreat amongst the hills."

The Raven, from its predaceous habits, is a bird hunted down without mercy by the gamekeeper and the shepherd; and, in fact, in some places taxes have been imposed for its destruction, as, for instance, in the Faroe Islands. It is omnivorous, and will take almost every thing in its power. Like the Hawks, it catches small birds and quadrupeds, kills a weakly lamb or fawn, and carries off the eggs of poultry and game should it happen to discover them; and it will never refuse to make a meal on carrion of any kind. Most animal substances are eaten—every creature which the sea casts up on the beach, from a dead whale to a mollusk; and it may sometimes be seen searching the pastures for moles, worms, and even insects. In autumn the Raven will also feed largely on grain, a habit noticeable in several other of its congeners. The Raven congregates in flocks—not because the bird is at all sociable or gregarious in its disposition, but from a common impulse to congregate where food is abundant. Macgillivray mentions a flock of Ravens that congregated on one of the islands in the sound of Harris, to feed upon a large herd of grampuses that had been driven on shore; whilst on another occasion, where a whale had been stranded, the birds flocked in numbers to the feast. In Finmark I have generally seen it in flocks, even during the breeding-season. According to Bogdanow, the Raven in Kazan will sometimes feed on fish; and that naturalist states that he has often watched the bird fishing and also capturing frogs. It will also eat fruit in the season.

The Raven's breeding-season, in many instances, is said to commence early in January. By the latter end of that month or early in February the old birds may be noticed patching up their nest—to which they return yearly, for they undoubtedly pair for life. The eggs, however, are seldom laid before March. The nesting-site varies according to the locality which the birds frequent. In some districts a lofty tree is selected; and this was probably the bird's favourite choice when it was commoner in England; but now the incessant persecution to which it is subject almost everywhere drives it to the remoter wilds of Scotland and the cliffs which skirt the ocean. In the province of Kazan Bogdanow states that the Raven breeds in towns on the towers and the roofs of storehouses, and that in Kazan itself a pair of birds breed annually on one of the water-pipes of the theatre. On the sea-cliffs, especially in the west of Scotland and the Hebrides, the Raven still breeds pretty frequently. Dixon thus describes a nest of this bird he visited in Skye:—"I had the opportunity of inspecting a Raven's nest today. It was built on some small rocks near Dunvegan Head, overlooking the loch. The cliffs themselves were not more than fifty yards high, although the broken ground sloped considerably from their base to the water's edge. The nest was some twelve feet from the summit, in the least accessible part of the rocks. A little grassy platform was near the nesting-place; and the nest itself was built under an overhanging ledge, quite invisible from above, and only partially so from below. The site commanded a grand look-out seawards, and was indeed the very place in which one would expect to find a Raven's nest—where these arch-robbers could obtain an uninterrupted view of the surrounding district. The nest was a bulky structure, made of a pile of sticks, large and small twigs and branches of the heather bleached with age, and evidently the accumulation of years. On some of the sticks large masses of sheep's wool hung. The lining was of finer twigs, roots, tufts of grass, and a little wool, the whole forming a very rude-looking nest, yet most strongly and compactly built, not in any way wedged amongst the rocks, but simply built upon the smooth ledge, which was devoid of all herbage whatever. The sides of the nest and the rocks were white with the droppings of the birds; and in the crevices were numerous castings of food refuse." When built in trees, the Raven's nest is a bulky structure, best described as a huge pile of sticks, and added to each year. My friend Harvie-Brown describes a nest of this bird, which was placed in a hole in a cliff about thirty feet from the ground, as "large structure of sticks, and inside about two fishing-basketsful of sheep's wool." One of the largest trees is selected for the purpose, and one with but few branches, as though the birds were conscious that their safety depended upon the inaccessibility of the site selected.

The following graphic notes on the storming of a Raven's nest near Earls Colne in Essex have been obligingly communicated by Mr. Edmund Capper:—"It was a splendid day in March, warm for the time of year; and we wandered through the preserves, crossed some fields, and entered the copse in which we understood the Ravens had built their nest. It was just such a spot as one could have fancied a Raven might have selected for its home—a well-preserved large copse with densely thick undergrowth, together with little patches of open glade in which were a few tall elms and other trees. On the afternoon of our visit it was intensely silent: the sun was bright in the heavens; and only the cooing of the Ring-Doves and the whirring of the Pheasants and other game served to give evidence of animal life in the wood. We silently entered, creeping along the glen up into its centre; but so little did we see of the objects of our search that we began to fear that we had missed the right plantation, when all at once we came to a little clearing in the middle of the copse; and there straight before us, on the top of an immense elm, was the Raven's nest. The hen slipped off the moment we emerged from the undergrowth; and we did not see her again; but the cock instantly flew down towards us with a menacing bark to give us battle. We were well acquainted with his complacent *pruk, pruk,* as he used to sail over the valley in his daily rambles; but this was an angry hoarse growl. The nest had been frequently robbed; and he had grown bold from experience. We were soon at the foot of the tree, and, throwing a line over the lowest available bough, were soon in a position whence we could ascend further, aided by our hands and feet. The nest was at an immense height; and as we drew nearer to it the Raven became bolder, and we had to stop occasionally and menace him. At times he must have been within a few yards of us, sailing from one tree to another, and darting at us as he passed. At last we reached the nest—a large structure of twigs of many years' accumulation, very compact, and very difficult to reach round. It was built almost at the top of the tree, in a fork at the end of a bough, and in a position not very safe to hold on by. With care, cap between our teeth to keep our friend off, we got one hand over the nest, and could just balance ourself sufficiently to look over its edge. There to our delight, on the lining of sheep's wool and fine fibre, rather deep down, lay three fresh eggs, just like the ones in the second figure of Hewitson's third edition. By great care, and by keeping the bird at bay with our handkerchief, we succeeded in getting them safely down. We slowly retired as we came, the cock bird tearing off the twigs and driving us before him, with ruffled feathers, savage barks, and short menacing sallies; and it was not until we were some little distance from his nesting-place that we really felt out of danger. At this lapse of time we confess our robbery seems rather cruel; but never shall we forget our visit to the 'Raven's tree.'"

The eggs of the Raven are from four to six in number, five being not an unusual clutch. In colour and markings they do not differ from those of the Carrion-Crow and the Rook, and go through the same variations as the eggs of those birds. They are bluish green or greenish brown in ground-colour, more or less thickly marked with dark olive-brown. In some specimens the markings are very sparse; in others so thick as often to hide the ground-colour. Certain varieties have the colour confined to a few streaks of yellowish brown, whilst others are sparingly blotched with rich greenish brown (almost black), intermingled with greyish underlying spots. A rare and beautiful variety of the Raven's egg is sometimes obtained reddish white in ground-colour, spotted with rich reddish brown and splashed with violet-grey. This type of egg closely resembles certain varieties of those of the Moorhen, and also approaches very closely in colour to the eggs of a South-African Crow, *C. capensis.* In size and shape Raven's eggs vary considerably, some specimens being quite undistinguishable from eggs of the Carrion-Crow. They vary in length from 2·1 to 1·7 inch, and in breadth from 1·4 to 1·25 inch.

During the whole time that incubation is in progress the Raven is remarkably wary, ever on the alert to defend its home from intruders. Now a Peregrine or a stray Eagle will come too near the cliff that contains their nest, and both the old birds will sally out and buffet the unwelcome stranger; or, mayhap, a Carrion-Crow or Hoodie, in search of plunder, unconsciously approach, and are beaten off by the ever-watchful birds. Both birds sit upon the eggs, although the greater part of the duties of incubation is performed by the female. When the young are hatched, the birds' thieving propensities become more strongly marked, as the wants of a clamorous brood engage their attention from dawn till dusk. Even when the young are able to leave the nest they are tended by their parents for some considerable time, until, when able to gain their own living, they are ruthlessly driven from their birthplace for ever.

The usual note of the Raven is a hoarse croak, something like the word *cruck, cruck*; and early in the year, during the pairing-period, it sometimes utters a few more musical cries. The Raven is very commonly kept in confinement; for it is a bird very easily tamed, and soon becomes most familiar. Its habits and oddities in confinement would furnish anecdote enough to fill a volume; and when so tamed the bird often displays great powers of voice, imitating the notes of other birds, the cries of cats or dogs, whistling a tune, or correctly copying any sound it may hear.

The Raven has the entire plumage black, glossed with steel-blue and purple, most richly on the upper parts and the feathers of the throat, which are considerably elongated like the hackles of a Cock. The tail is slightly rounded. Bill, legs, feet, and claws black; irides brown. The female is slightly smaller than the male; and its plumage, as well as that of the young, is not so metallic.

In the Faroes and Iceland, and sometimes in various parts of Scotland, pied Ravens are sometimes observed, to which Vieillot applied the name of *Corvus leucophæus*; but these birds possess no claim to specific distinction, and are but accidental varieties of the Common Raven. Wolley states, in a paper on the birds of the Faroe Islands, published in Jardine's 'Contributions to Ornithology,' that two pied specimens of the Raven were shown to him that had been taken from a nest containing young of the normal colour.

* * *

CORVUS CORONE.

CARRION-CROW.

(PLATE 16.)

Corvus cornix, *Briss. Orn.* ii. p. 12 (1760).
Corvus corone, *Linn. Syst. Nat.* i. p. 155 (1766); et auctorum plurimorum—*Temminck, Gould, Bonaparte, Schlegel, Degland, Gerbe, Dresser*, &c.
Corvus orientalis, *Eversm. Add. Pall. Zoogr. Rosso-Asiat.* ii. p. 7 (1841).
Corvus pseudocorone, *Hume, Nests and Eggs Ind. B.* p. 410 (1874).

The Carrion-Crow closely resembles the Raven in its appearance and habits. In spite of the incessant persecution to which it is subjected by game-preservers and farmers, it is still a fairly common bird in the wooded districts and on the rocky coasts of England, the Channel Islands, and South Scotland; but in Central and Northern Scotland it certainly is less common and more local in its distribution. Gray, however, states that throughout the mainland of the latter country the Carrion-Crow is generally distributed. In the Hebrides and Western Islands it is rare; whilst to the Orkneys and Shetlands it is usually only known as an accidental straggler after severe gales. In these localities its place appears to be taken by the Hooded Crow. Dixon, however, in spring met with the bird in some of the wildest parts of the Cullin Hills in Skye. He also saw it at Portree, Dunvegan, and Talliska in that island; but in all districts it was rare. In Ireland the Carrion-Crow is much rarer than in England, and is partially replaced by the Hooded Crow, which is commonly distributed. It was known by Thompson to occur in the north, east, and west of the island; but in the south it certainly becomes rare, and the particulars of its distribution are meagre.

The geographical distribution of this species is most remarkable. The Carrion-Crow is, strange to say, an East-Siberian bird. Its home is in the vast forest lying between the great river Yenesay and the Pacific, a district perhaps twice the size of Europe. Northwards the colony extends in summer almost to the limit of forest-growth, and southwards to the confines of the desert of Mongolia, the Corea, and Japan. Here, unharmed by man or beast, they appear to have multiplied to such an extent that emigration became necessary. West of the Yenesay the country was held by an equally powerful colony of Hooded Crows; and in China, India, and the Malay archipelago a large-billed ally stopped the way. They seem to have followed the mountain-ranges of Southern Siberia into Turkestan, and, crossing the Caspian, to have forced a passage through the colony of Hooded Crows, by way of the Caucasus, the northern shores of the Black

Sea, and the valley of the Danube, until they reached the western boundary of the colony of their rivals, beyond the Elbe and the Alps, and spread over Germany, France, Spain, the Netherlands, and England. In Scotland they again met with a small colony of Hooded Crows (which crossed over from Scandinavia); and there, as well as in the valleys of the Elbe and the Yenesay, they fraternize with their rivals and intermarry with them.

Besides the Large-billed Crow *C. macrorhyncha*, which has been mentioned as inhabiting the Oriental Region, and which is divisible into three races, the Carrion-Crow is represented in Australia by *C. australis*, which differs in having the feathers of the hind neck rounded instead of pointed. In America there are several species of Crows, bearing a somewhat superficial resemblance to our bird, but distinguished by having the feathers of the head and neck rounded, not lanceolate as in the Carrion-Crow.

The haunts of the Carrion-Crow are similar to those of the Raven. Like that bird, it is an inhabitant of the wildest mountain-districts, the upland sheep-farms, and the rock-bound shores. It is also the gamekeeper's bane, and takes up its residence in the thick coverts and woods in those sequestered haunts which, in earlier days, so frequently resounded with the hoarse croak of the Raven.

The Carrion-Crow is one of the first birds astir in the morning. He is up before the dawn; and from that time till after sunset he appears to be in one incessant search for food. His flight seems a more laborious one than that of the Rook. He is not particularly a shy bird, but an extremely cautious and vigilant one—the result, most probably, of incessant persecution. He passes through the air on regular beat of wing, sometimes slowly, sometimes with considerable velocity; and his powers of flight may be witnessed to perfection when he chases his mate through the air or buffets the smaller Hawks and Gulls. Upon the ground he walks with ease, like the Rook, and sometimes leaps forward, aided by his wings.

Carrion-Crows are comparatively solitary birds; but at times they are seen to congregate in flocks, and even to associate with other birds. Many of these gatherings are simply caused by the abundance of food in one locality, to which all the Crows of the district will repair; and when their hunger is satisfied they separate again. At other times the birds have been known to mingle with flocks of Rooks and Jackdaws, and in winter to roost with them. Waterton, however, states that the Carrion-Crow is sometimes gregarious in autumn and winter; and in Siberia I found them decidedly so until the breeding-season. In winter they sometimes visit the newly manured fields in search of food. The call-note of the Carrion-Crow is a hoarse croak, absolutely undistinguishable from that of the Hooded Crow, not so loud or so harsh as the Raven's, but much more so than the Rook's. It is also often heard to make many different sounds; and its call-note is uttered in various tones.

The Carrion-Crow makes almost as engaging a pet as the Raven. Its sagacity and cunning form the subject of many interesting anecdotes, and have gained for the bird an amount of awe and reverence amongst the superstitious country-folk only exceeded by that attached to the Raven itself.

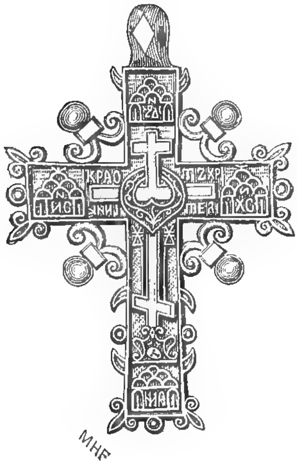
The food of the Carrion-Crow is principally composed of animal substances; but so voracious is his appetite that nothing at all edible is refused; in fact, he might justly be called omnivorous. Such a varied diet naturally sends the Carrion-Crow into almost all situations in search of it. Sometimes he seeks his food much after the manner of the Gulls, hovering above the water and taking garbage floating on the surface. As a rule, though, he keeps well inshore, following the margin of the waters, ever and anon alighting to prey upon the varied diet the ever-restless ocean sets before him. Now it is a drowned sheep or lamb; then a stranded fish; or more rarely a mussel, with which, with a cunning we cannot help admiring, he flies up to some height in the air and then drops it to the ground to break open the shell. He will find out any carrion lying in secluded corners, visit the pastures which have been manured with refuse from the slaughterhouses, and greedily devour the entrails, pick the bones, or revel in the decaying flesh. He will also search the pastures and the newly sown lands in search of insects, grubs, or grain with as much pertinacity as the Rook, the only time perhaps in his thieving life that he is of any great service, if we do not look upon him in the light of a scavenger. But we must now glance at that portion of the Carrion-Crow's food to obtain which brings the bird into such evil repute. In the lambing-season the bird is dreaded by the shepherds quite as much as they dread the Raven, and helpless lambs and weakly ewes too often fall victims to this bold and relentless robber. The game-coverts and the Grouse-moors are also visited and plundered; the eggs are diligently searched for and devoured; and later in the year the young birds fall victims. The hen-wife also has just cause to dread the Carrion-Crow; and, in close attendance on the poultry-yard, he will carry off the young chicks the moment an opportunity is offered. Waterton, in his charming 'Essays,' thus writes of the Carrion-Crow's love for poultry:—"The cook had in her custody a brood of ten ducklings, which had been hatched about a fortnight. Unobserved by anybody, I put the old duck and her young ones in a pond nearly three hundred yards from a high fir tree in which a Carrion-Crow had built its nest; it contained five young ones almost fledged. I took my station on the bridge, about one hundred yards from the tree. Nine times the parent Crows flew to the pond, and brought back a duckling each time to their young. I saved a tenth victim by timely interference." But his prey is not confined to birds alone; young rabbits, leverets, moles, and other small animals are captured. He will feed on grain, like the Rook—also, when hard pressed for food, on berries. Waterton states that he will feed voraciously on ripe cherries, and in autumn on walnuts.

The breeding-season of the Carrion-Crow is somewhat late; and in this respect it differs considerably from the Raven or even the Rook, approaching most closely the Jackdaw. The Raven's eggs are said to be often laid in February, the Rook's in March; but the Carrion-Crow seldom commences nesting-duties until the latter end of April or beginning of May. It is very probable that this bird pairs for life; and each season the old nest will be visited and used again, provided the owners are not molested. If one of the birds be destroyed, its partner soon finds a fresh mate. The site for its nest depends considerably on the nature of its haunts. In hilly districts, and in the neighbourhood of the coast, its bulky nest is made in the rocks, usually in the least accessible part. In the wooded districts it selects some tall tree for its purpose, a large oak or pine being very often chosen; whilst, according to my friend Mr. Labouchere, on the coast of Holland, where trees and rocks are scarce, it often builds its nest upon the ground. The Carrion-Crow will sometimes seek out a nesting-site in a very exposed situation, and although so shy and wary at other times of the year, will in the nesting-season often become most trustful—a habit, by the way, also observed in the Missel-Thrush and the Ring-Dove. The nest of the Carrion-Crow is a large structure, well made, and usually, if in a tree, in the topmost branches. From the fact that the nest is added to each season, some of them are remarkably large. It is made of large sticks, usually dead ones, stems of heather, masses of turf, fine twigs, and roots, and lined with wool, moss, dead leaves, fur, feathers, and any soft material the bird can find. In shape it is rather flat; and the interior is smooth and compact.

The eggs are from three to six in number, usually five, and are very similar to those of allied birds. They vary from pale bluish green to clear green in ground-colour, spotted and blotched with olive-brown of different shades, with violet-grey underlying spots. They are subject to no small amount of variation. Some specimens are so thickly spotted and blotched as to almost conceal the ground-colour; others are very sparingly marked. A very handsome egg in my collection is covered with short streaky semiconfluent lines of pale olive-brown, intermingled with similar lines of violet-grey. On some specimens the markings are much darker than on others; and sometimes a few almost black spots and wavy scratches occur. They are usually well marked; but occasionally specimens are obtained almost spotless, or merely marked with a few yellowish-brown dashes. They vary in length from 1·8 to 1·5 inch, and in breadth from 1·3 to 1·1 inch. It is impossible to distinguish the eggs of the Carrion-Crow from those of the Hooded Crow; but the eggs of both these birds are generally larger than those of the Rook and smaller than those of the Raven.

When the young are hatched, the old birds become even more troublesome to the gamekeeper and the hen-wife; and until they are able to fly, the neighbourhood is scoured in search of food for them. The Carrion-Crow only rears one brood in the year; and the young are soon left to forage for themselves. Although the Carrion-Crow is a resident in this country, its numbers are evidently increased in autumn by birds from Holland. In Norfolk they are said to be regular spring and autumn migrants; and it is only in this character that they probably appear in parties on our eastern coasts.

The Carrion-Crow has the entire plumage black, glossed on the upper parts, wings, and throat with purple and green. Bill black; legs, feet, and claws black; irides brown. The female does not differ from the male in colour; but young birds differ from their parents in having no gloss on the plumage. The Carrion-Crow may be distinguished from the Rook by its much stouter bill, by the prevailing green instead of violet gloss to the plumage, and by never having the base of the bill denuded of feathers. In the Carrion-Crow the nostrils are always covered with thick bristly feathers.



CORVUS CORNIX.

HOODED CROW.

(PLATE 16.)

Corvus cornix cinerea, *Briss. Orn.* ii. p. 19 (1760).
Corvus cornix, *Linn. Syst. Nat.* i. p. 156 (1766); **et auctorum plurimorum**— *Naumann, Gould, Gray, Schlegel, Salvadori, Dresser,* &c.
Corvus cinereus, *Briss., Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 18 (1816).
Corone cornix (*Linn.*), *Kaup, Natürl. Syst.* p. 99 (1829).

This handsome and well-known bird can only be regarded as a winter visitant to England and Wales, where it is commonest on the eastern coasts, only occasionally wandering inland in some localities, but in others appearing as a regular migrant. In the Channel Islands it is only known as an accidental straggler in autumn and winter. A few pairs, however, have from time to time remained and reared their young in various parts of England and Wales; otherwise these portions of the British Islands appear to be tenanted in the breeding-season exclusively by Carrion-Crows. In Scotland the Hooded Crow is pretty generally distributed throughout the mainland and the islands, including the Orkneys, the Shetlands, St. Kilda, and the Faroes; and it is also an occasional visitor to Iceland. In Ireland it is equally common and widely distributed throughout the country.

The Hooded Crow is the western form of the Carrion-Crow. Though the area of its distribution is intersected by the narrow belt of Carrion-Crows which connects the East-Siberian colony with the Turkestan colony, and the latter with the West-European colony, it cannot be said to be discontinuous, unless the colonies in Scotland and Ireland be regarded as isolated from the main colony, which extends eastwards from Scandinavia. On the continent the Hooded Crow is found throughout Europe east of about long. 10°, and in Asia extends north of Turkestan as far as the valley of the Yenesay, and south of Turkestan through Asia Minor and Persia into Afghanistan, and through Palestine into Egypt. Examples from the Persian Gulf have the pale slate-grey replaced by nearly white, and have been called *C. capellanus*; but Siberian birds are intermediate in colour, and the Persian birds can only be looked upon as a local race. In China and in South Africa Crows are found in which the black is distributed in a somewhat similar manner; but these birds are probably all specifically distinct.

The Hooded Crow is a migratory bird in the northern portion of its range. Although it is a permanent resident in Scotland, great numbers of the Scandinavian birds migrate to Holland, Belgium, and Northern France, and even to England, to winter; and many of the Siberian birds, together with hybrids of every degree, winter in Turkestan. This bird migrates by day. When I was in Heligoland, during the first week of October large flocks of Hooded Crows were frequently passing over, and sometimes a scattered and straggling stream continued all day long. Their flight was heavy and laborious, and frequently at no great height above the sea, many of them on landing having to rise to the edge of the cliff, where they stopped a short time and then passed on.

Dixon made the following notes on this bird in Lincolnshire:—"In many parts of England the Hooded Crow is a well-known migratory bird, whose arrival in the autumn is looked for with almost as much interest as that of the Swallow and the Cuckoo in spring. One of the localities where Hooded Crows abound in autumn is on the low-lying coasts of Lincolnshire, from a few miles south of Skegness to the Boston Deeps. On this noble expanse of salt marsh, whose monotony is enlivened with hordes of wading birds, with Gulls and Ducks, the Hooded Crow is one of the commonest of birds from October till the following spring. They make their appearance about the middle of October—so regularly, in fact, that the fisherfolk and coastguardsmen, well versed in the bird-life of the district, will tell you that by no chance will the Swallow and the Crow be seen in the air together; the date of departure of the one bird is the signal for the approach of the other. They appear to migrate in the daytime; and I have seen them, in little parties, in pairs, or singly, arriving from the sea during the whole day. This migration goes on for weeks; if the weather be favourable they are incessantly pouring in from the east. Upon these extensive marshes the Hooded Crow obtains the greater part of its food. It also flies inland for considerable distances, and is as frequently seen on the ploughed fields, the stubbles, and the pastures as the Rook. I must confess that, in spite of the dark tales of plunder and his questionable mode of getting a livelihood, the Hooded Crow is a favourite bird of mine, and his habits and regular movements never fail to interest me. The powerful flight of this bird may be witnessed to perfection here as he flies over the sea-banks from the flowing tide to the pastures. He is not by any means a shy bird, and by advancing in a side direction I have often succeeded in shooting him. Many authorities state that the Hooded Crow does not feed on grain; but this is not the case. Here, especially in the neighbourhood of Friskney, the Hooded Crow during the time autumn sowing is going on lives almost exclusively on grain, seeking it just like the Rook. This I have ascertained beyond doubt by dissection. It will also feed on grass and slender shoots of herbage. Upon the marshes it is actively engaged in search of sand-worms, small crabs, and cockles. With the marsh-men the Hooded Crow bears a bad name from his habit of devouring the birds caught in the 'flight-nets.' Over these broad mudflats and marshes miles of netting is set to ensnare the countless thousands of birds continually flying over them. If the owners of the nets are not at them in good time in the morning the relentless Crows make a meal of the captured birds. Many a wounded bird on these marshes also falls a victim to the cunning Crow, ever on the look-out for prey. I have seen the Hoodies congregate in countless numbers here in autumn; and they also do the same in spring, probably for the purpose of pairing and *not* as *'craas' courts'* for administering justice or punishment, as even some modern ornithologists affirm to be the case."

The habits of the Hooded Crow in summer do not differ very much from those of the Carrion-Crow; and the haunts it frequents are similar. It is an inhabitant of the wild upland farms, the rocky coasts, and moors, where it wages an incessant war upon all creatures it is capable of overpowering. It is detested by the gamekeeper and the shepherd as much as the Carrion-Crow; and a ceaseless persecution is waged against it.

Sometimes the Hooded Crow may be seen searching for its food on the water like a Gull. When carrion is scarce the Hooded Crow is a perfect pest, and his depredations extend in wide directions. In spring he searches diligently for nests and plunders them, from the eyry of the Golden Eagle, only accessible to a winged enemy, to the little homes of the Pipits and the Larks amongst the meadow-grass. He will rob the sea-birds of their eggs, also the game-birds; and even poultry are not safe from his attacks. Nor are his inroads confined to the eggs; he will also carry off the young chicks, conveying both eggs and birds to some quiet corner, where he can dispose of them unmolested. Booth is of opinion that the Hooded Crow sometimes visits the eyries of the larger birds of prey to plunder the larder provided for the young. Saxby gives a most graphic account of a colony of Terns which beat off and ultimately drowned a Hooded Crow that, bent on plunder, invaded their breeding-ground. These birds gathered in force round their common enemy so thickly and pertinaciously that he was unable to rise. Gradually driving him out to sea they beat him still lower and lower towards the water, until at last he fell into the sea exhausted.

The note of the Hooded Crow is like that of the Carrion-Crow. It is a hoarse *kra*, repeated at intervals, and sometimes drawn out into the syllables *karruck, karruck,* almost like the call-note of the Gannet. In the pairing-season, which is early in March, he will also utter many pleasing sounds; and at this time he is certainly a most engaging bird, for his notes are usually uttered as he opens and closes his wings, spreads his tail, and sometimes performs various graceful aerial evolutions.

The Hooded Crow probably pairs for life, and is a somewhat late breeder. The Raven's eggs are laid long before the snow is off the mountains; [but the Hooded Crow waits for a more temperate season, and seldom sets about nesting-duties before the middle of April. Its nest is sometimes placed in a tree, sometimes on the rocks, both inland and on the ocean cliffs. It will also, where large trees and rocks are scarce, make its nest in bushes and small birches and firs only a few feet from the ground; and Gray states that it will sometimes build on the roofs of huts. The nest is composed of almost every material which can be applied to the architect's purpose. Large sticks and twigs, stalks of heather, bones, moss, turf, wool, and feathers are all used. From the fact that the bird returns to its old habitations year after year, many nests are very bulky structures, and the greater part of the outside material is bleached by the weather. The inside is smooth, soft, and compact, and rather deep. The eggs of the Hooded Crow are four or five in number, and are absolutely undistinguishable in size and colour from those of the Carrion-Crow. They exhibit precisely similar types and variations as the eggs of that bird, rendering a description of them unnecessary.

When I was in Siberia in 1877 I had an excellent opportunity of investigating the question of the interbreeding of the Hooded and Carrion-Crows. The boundary-line between the enormous colony of Hooded Crows in Russia and West Siberia and the equally vast colony of Carrion-Crows in East Siberia lies between the towns of Tomsk and Krasnoyarsk, which are about 350 miles apart. As you travel eastwards from Tomsk, for about 120 miles the Hooded Crow only is to be seen on the roadsides, and during the last 120 miles before reaching Krasnoyarsk the Carrion-Crow alone is found. But in the intermediate hundred miles or more a very curious state of affairs presents itself. About one fourth of the Crows are thoroughbred Hoodies; one fourth are pure Carrion-Crows; and the remaining half are hybrids of every stage—mulattoes, quadroons, octoroons, and so on, *ad infinitum*. The fact that these hybrids present every intermediate form between the two species is *primâ facie* evidence of their fertility. I succeeded, however, in getting positive evidence of this fact. On the Arctic circle, in the valley of the Yenesay, early in May, whilst the ground was still covered with six feet of snow, a couple of hybrid Crows paired together and built a nest near the top of a pine tree. On the 11th it contained an egg; on the 21st I climbed again up to the nest and found it to contain five eggs, two of which I took. On the 31st one egg was hatched and the other two were chipped ready for hatching. On the 26th of June I again climbed up to the nest and found that one of the young birds had either died or flown. I took the other two and shot the female. She proved to be at least three parts Carrion-Crow. The feathers on the sides of the neck and on the lower part of the breast and belly are grey, with dark centres. I was unable to shoot the male; but I had on various occasions examined him through my binocular. He had more Hoodie blood in him than the female, having a very grey ring round the neck, and showed a good deal of grey on the breast and under the wings. My total bag of Crows at the Ku-ray′-i-ka was three thoroughbred Hoodies (two males and a female), ten thoroughbred Carrions (nine males and one female), and fifteen hybrids (seven males and eight females). These figures, as far as they go, lead me to the conclusion that the female Carrion-Crows were all breeding, away in the woods, so that I rarely got a shot at one; whereas the female hybrids were most of them barren, so that I was able to shoot as many of one sex as of the other.

Some writers who have not succeeded in overcoming their pre-Darwinian prejudices against the interbreeding of allied forms have endeavoured to show that the interbreeding of the Carrion and the Hoodie Crows is an exceptional case—an instance of so-called "dimorphism," and that the offspring of these "mixed marriages" partake of the peculiarities of either one or other of their parents or revert back to them before they become fully adult. So far as I have been able to discover, the evidence in favour of this view rests upon the unsupported testimony of gamekeepers and shepherds, than which no evidence could be more unreliable. I have no doubt that the comparative rarity of intermediate forms between these two subspecies is caused entirely by their comparative barrenness. The two Crows are probably more differentiated than the two European Nuthatches or the two Lesser Spotted Woodpeckers, or than some of the nearly allied Tits; but the difference between them can only be considered of subspecific value, and the full name and title of the Hooded Crow is *Corvus corone*, var. *cornix*, though, as in other similar cases, the binomial name will generally be used for the sake of brevity.

The thoroughbred Hooded Crow has the wings, tail, head, throat (extending as far as the upper part of the breast), and thighs black. The rest of the body is ashy grey, slightly darker on the under tail-coverts. The upper tail-coverts begin grey, gradually become darker in the centre, until they are only edged with grey, and finally become black as they join the tail. Legs, feet, and claws black; irides dark brown. The female resembles the male in colour, but is slightly smaller in size. The nestling plumage does not differ from that of the adult except in being much duller.

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CORVUS FRUGILEGUS.

ROOK.

(PLATE 16.)

Corvus cornix frugilega, *Briss. Orn.* ii. p. 16 (1760).
Corvus frugilegus, *Linn. Syst. Nat.* i. p. 156 (1766); et auctorum plurimorum—*Temminck, Naumann, Gould, Schlegel, Gray, Salvadori, Dresser, Newton,* &c.
Colœus frugilegus (*Linn.*), *Kaup, Natürl. Syst.* p. 114 (1829).
Corvus agricola, *Trist. Proc. Zool. Soc.* 1864, p. 444.
Trypanocorax frugilegus (*Linn.*), *Loche, Expl. Sci. Algér., Ois.* i. p. 113 (1867).

Few birds are better known than the Rook; its noisy gatherings and its habit of building in colonies make it a bird well known and interesting to all. It is found commonly in most parts of England and Wales, as well as of Ireland, wherever the country is not too barren to afford it a pasture and a nesting-place. Few indeed are the country mansions or villages that do not possess their rookery. But the Rook does not always settle close to man's habitation; for in the High Peak, for instance, there are several rookeries in small plantations on the bleak hills above Castleton, whilst in the trees near Peveril Castle in the same district another small colony occurs. Northwards the Rook becomes less common. In Scotland it is rapidly increasing in numbers and extending its range as tree-planting is more extensively pursued. It is found, although at present locally, throughout Scotland as far north as the Orkneys and Shetlands, but is said only very recently to have begun to breed in the latter localities. In Skye the Rook is spreading; and at Dunvegan there is an extensive rookery quite recently established in a large plantation, the most westerly breeding-place of the bird in Scotland. It has established colonies even in the wilder parts of Argyleshire and West Sutherlandshire. Large flocks of Rooks sometimes wander across to the Outer Hebrides; and it is very probable that the day is not far distant when colonies will be formed there. It also occasionally strays to the Faroes. This increase of the Rook is viewed by shepherds and farmers with no little anxiety; and in some parts of Scotland the bird is rigorously persecuted; for it may be harmless enough in England, where its feeding-grounds are so large, but in Scotland, where its pastures are small, it may possibly take a leaf from the Carrion-Crow's book and become a pest. The Rook does not breed in the Channel Islands, and is only an accidental visitant to Guernsey, in severe winters sometimes occurring in large flocks.

The Rook breeds throughout Central and Southern Europe as far north in Scandinavia as the Arctic circle, but in Russia and in West Siberia only up to lat. 64°. In the northern portions of its range it is a migratory bird, being found in summer in Scandinavia, North Russia, North Germany, Denmark, and the north of France. In all these countries, where the winters are much more severe than in England, the Rook leaves for the south, and is a common winter visitant to Southern Europe, being found at that season in the south of France, Portugal, Spain, South Germany, Italy, Greece, the islands of the Mediterranean, Asia Minor, and North-east Africa. Eastwards the Rook is found breeding throughout Turkestan and West Siberia as far east as the valley of the Irtish, where I saw large flocks slowly migrating southwards in autumn. The Asiatic birds winter in North Persia, Afghanistan, Cashmere, and North-west India. Still further to the east the Common Rook is replaced by a nearly allied species, *Corvus pastinator.* This bird differs from its western congener in having the plumage glossed with reddish purple instead of bluish purple; and the bare space round the beak is confined to the upper mandible, the throat being feathered to the base of the lower mandible, as in the Carrion-Crow. The eastern Rook ranges through Eastern Siberia to China and Japan.

The Rook is a bird of the well-cultivated districts—broad pasture-lands and fallows, where the timber is large and distributed in plantations, groves, avenues, and woods. Parks are favourite places with the Rook and also pleasure-grounds. From the great changes that have taken place in some districts, many breeding-haunts of the Rook are singularly situated. It is a bird evidently with a strong attachment to its old quarters, and occasionally still remains to rear its young in situations that have changed from country to town. In some places the Rook may be seen rearing its young in trees in gardens which have once formed portions of some park now demolished by the enterprise of some speculative builder. In others (as, for example, the rookery in Curzon Street) a colony has allowed itself to be "built in," and the Rooks continue to breed amidst the din of the traffic below. Once established, few things will cause the birds to forsake the rookery. Even the rumble of the railway does not give them any perceptible annoyance; and many are the rookeries in England where the line has been carried through the plantation that holds their nests. The favourite haunts appear to be large parks studded with tall trees, from which an easy flight will take them to arable land.

The habits of the Rook are exceedingly regular. From year to year each season finds the orderly colony engaged in operations peculiar to the season, whether it be the busy time of nest-building and rearing the young, their summer and autumn gatherings (often in enormous numbers), or their nomad life in winter.

In all its habits the Rook is a gregarious bird; and its gatherings are very often not confined to the inhabitants of one colony; for after the breeding-season the birds of several rookeries often unite and form one vast gathering, feeding, flying, and roosting in company. In autumn and winter the Rooks belonging to the smaller colonies visit their old nests. They will leave the larger flock feeding sometimes at a considerable distance, and pay a hasty visit to their old homes; but having apparently satisfied themselves that the rookery is "all right," they rejoin their companions. As the season advances they make a longer stay at their nests, and apparently hold a consultation as to the wisdom of beginning to repair them. As food becomes more plentiful they seem less and less anxious to rejoin the large flock, which we may presume to have been the original parent colony, and feed independently of them, on pastures nearer their breeding-grounds; but at nightfall the old social feeling seems to predominate, and they wing their way to the common roosting-ground. It is interesting to watch them flying home, with slow steady beats of the wings, like the flight of a Heron, as if they were tired with the day's search for food, straggling one after another to one point, as if after a long journey. In some cases, probably when food is scarce, they seem not to return home, but to camp out all night near their feeding-grounds; for I have sometimes, when returning home in the country late at night, passed a few exposed trees by the roadside black with Rooks, in a situation which one cannot suppose to have been their habitual roosting-place.

The note of the Rook is a loud *krah-krah*, varied to *kraw-kraw*, subject to considerable modulations as the birds are angry or simply calling to their fellows when disturbed or alarmed. In the night Rooks may be often heard uttering a variety of low notes; whilst quite a different sound to the usual caw, a sort of *krck*, is uttered when the sitting bird is being fed by its mate or when awaiting its arrival with trembling wings on the edge of the nest.

The Rook's many services to man have placed it in greater favour than all its other sable congeners; and although the farmer will often shoot a few birds in sowing-time, to serve as scarecrows on his fields and potato-patches, he is usually candid enough to admit that he receives no small amount of benefit from the bird's visits to his lands and pastures. Various indeed is the food of the Rook; and there is not a field that he does not visit at some season of the year. His visits to the pasture-lands are regular and incessant, to prey upon the worms, snails, and grubs that abound there, especially in the morning. He frequents the corn-lands chiefly during the sowing-season; but his little pilferings of grain are amply repaid by the wireworms and the grubs of the cockchafer and the craneflies which he greedily devours. The Rook is also seen upon the potato- and turnip-fields, where his visits are equally beneficial, although in winter, when almost starved by a long-continued frost, he will often bore into the turnips with his strong beak. Perhaps the most favourite feeding-grounds of the Rook are the stubbles, especially when ploughing is going on and worms and grubs are to be found in the newly turned up soil. When feeding, the Rook is very wary, and a sentinel is usually perched on some neighbouring tree to give the alarm on the approach of danger. Towards evening, when their appetites are satisfied, they often fly round and round, and toy with each other in the air, before setting off for their roosting-quarters.

Towards the end of February they begin to repair their nests. Every day they stop longer and longer; and when the eggs are laid they roost at the rookery. Rooks may be tempted to form a new rookery, by putting up artificial nests in suitable trees. During the process of building they are often very quarrelsome. When the birds break off twigs from the nesting-trees, they fly clear of the tree and gain the nest by an uninterrupted course, probably because, were they to convey the twig through the tangled branches, it would be an extremely troublesome and difficult task. During the building-period one of the birds usually stays to guard the unfinished nest whilst its mate is seeking materials; for Rooks are pilfering birds; but when once the nest is completed it may be left with safety. When I was residing at Sheffield I had several Rooks' nests in my garden, my next-door neighbour had fourteen, and there were about as many more on the other side of the road—all no doubt forming part of the old rookery in Broomhall Park, which must originally have been scattered over a mile or more, as there are isolated trees left in the streets which are still tenanted with their old occupants every spring. Towards the end of February the Rooks began to be very busy about their old nests. One year only one nest had survived the storms of winter. The birds appeared to have a quarrel about it; and finally it was completely pulled to pieces. They fairly began to build in good earnest about the 1st of March, when they might be seen, sometimes three or four in a tree at once, tugging at the twigs and breaking off a piece, which they often transferred from their beaks to their claws, apparently to rest from the exertion of breaking it off. They seemed to be very quarrelsome all the time they were building, continually stealing twigs from each other's nests. Once they fought so desperately that one poor Rook fell down dead. It was no uncommon thing to see a good foundation for a nest laid by breakfast-time, and to find not a vestige remaining at noon. Both parents assist in the duties of incubation; and Dixon assures me that he has repeatedly seen them change places on the nest.

The nest is composed outwardly of sticks, varying in thickness from slender twigs to branches more than half an inch in diameter, and is cemented with mud and clay and lined with large masses of turf, a few roots, moss and dry leaves, straws, and a few feathers. It is somewhat flat in shape outside; but inside the hollow is rather deep. Although in rare instances nests of the Rook may be seen loosely made, the majority are singularly strong and compact. Numbers of nests are built near together, in many cases touching one another, the largest and most bulky ones being those which have withstood the storms of many winters and have been added to and strengthened yearly.

The eggs of the Rook are from three to five in number, and differ considerably in size, form, and markings. Some specimens are oval; others are rounder, whilst many are considerably elongated. Many have the ground-colour green of various shades; whilst in some it is very light blue, almost white. The markings are greenish brown of different degrees of intensity, sometimes interspersed with spots of deep blackish brown. The markings are often so thickly distributed as to hide the ground-colour. They measure from 1·8 to 1·55 inch in length, and from 1·25 to 1·05 inch in breadth. Should the first clutch of eggs be removed, others will be laid, but in smaller numbers.

During the second week of April the feeble notes of the young Rooks, swayed to and fro in their elevated cradles, may be heard; and then the old birds are taxed to the utmost to furnish them with food. From early morning until the dusk of evening the old birds may be seen passing in almost noiseless flight to and from the fields with food for their young. For weeks this goes on, until, in the most forward nests, we see the young birds sitting outside on the branches. The leaves are then rapidly expanding, and partly hide the young from view, who try their wings with little flights from tree to tree and eventually follow their parents to the pastures, and are there fed and tended, returning at nightfall to the nesting-trees.

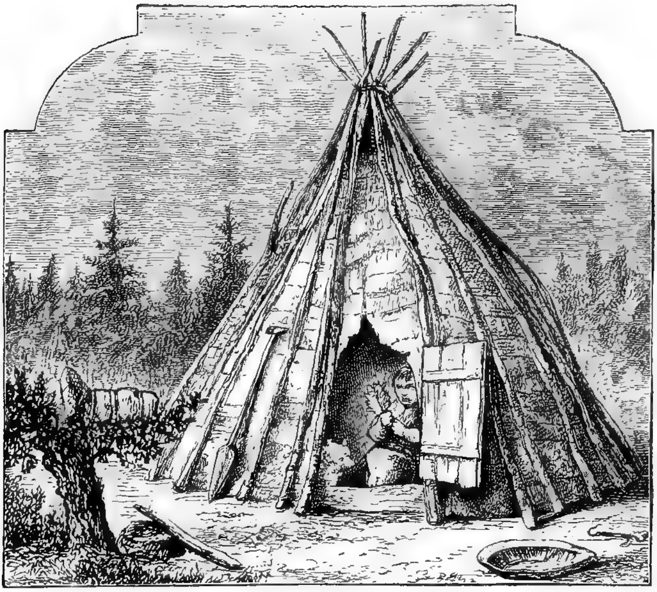
It is an interesting sight to watch their evening movements. The babel of sounds is deafening as they wheel round and round previous to alighting. One by one, or in little parties, they perch on the topmost branches, now struggling for a post of vantage or taking short flights, uttering their hoarse caws. In the distance, parties of three or four are winging their way to join the throng. The noise becomes louder, the somewhat shrill cry of the Jackdaw sometimes mingling with the homely *caw* of the Rook. At last a lull occurs, as the Rooks, perched on every available bough, turn their heads from side to side or preen their glossy plumage. But it is not to last, even though the sun has sunk below the horizon and night is at hand. One of the birds, perched on a dead limb, utters a hoarse *caw*; another and another answer; now two or three together; and speedily the din is loud, nay, louder than before. Many change their places, their dark forms showing out against the clear western sky. Others hop about the boughs, to be pushed off by their companions and to be compelled to seek refuge elsewhere. But at last their caws are heard in lessening numbers; and finally all is silent.

When the young are able to fly, the whole colony, both young and old, frequently soar to an immense height directly above the nest-trees, and wheel round and round in circles, ever and anon buffeting each other. Then, when anxious to alight, they often perform the motion known to country-people as "shooting," coming down with great rapidity on wings a little raised and in a zigzag direction. To see a large number of Rooks so engaged is indeed a grand sight. By many people this peculiar flight is thought to portend wind; but it is merely the birds' mode of alighting on ground or trees directly beneath them. As a rule the Rook alights more slowly and warily, and often passes and repasses over the same ground.

Like most other species of the Crow tribe, Rooks are almost omnivorous. They are very fond of picking a bone, if they can get the chance. In autumn they vary their fare with acorns, which they obtain very often by flying up to the slender twigs and breaking them off by their own weight, hanging suspended from them. Of their propensity for egg-stealing little need be said. That they will sometimes despoil a nest cannot be denied; but such cases are very exceptional. They have also been said to feed on small birds and mammals. Rooks often frequent the sea-coast in search of the numerous animal substances to be found there. Sometimes they may be seen preying upon mussels, obtaining the mollusk by carrying the shell up to some considerable height and dropping it on a rock or stone, just as the Crows do. Fruits of various kinds also form part of their diet, as well as beech-nuts and berries. Although a rookery is not to be encouraged in the neighbourhood of a Grouse-moor, we have no bird of greater use to the agriculturist; and its few little failings are amply repaid by its countless good offices in ridding fields and pastures of some of their greatest pests.

Much controversy has taken place, and considerable diversity of opinion exists, as to the nature of the bare patch at the base of the mandibles of the Rook. That this bareness is produced by the bird rubbing off its feathers when digging in search of food is impossible; for if such were really the case, why should not the Carrion-Crow, the Jackdaw—in fact, all others of its kindred—exhibit a similar peculiarity? for all dig just as much. There can be but little doubt that these small feathers drop off—a peculiarity which began in some remote ancestor of the Rook and, proving to the advantage of the species, was developed by natural selection.

The Rook has the entire plumage black, beautifully glossed, especially on the upper parts, with rich bluish purple, especially on the head and neck. At the base of both mandibles, and extending some way down the throat, the skin is bare of feathers, warty, and whitish gray in colour. Bill, legs, toes, and claws black; irides brown. The female is slightly less in size than the male; and her plumage is less brilliant. Young birds resemble the adult; but their plumage has little gloss, and the base of the beak is feathered, probably until the spring moult, as in the Carrion-Crow, from which they may always be distinguished by their more slender beak and the different gloss of the plumage.



CORVUS MONEDULA.

JACKDAW.

(Plate 16.)

Corvus monedula, *Briss. Orn.* ii. p. 24 (1760); *Linn. Syst. Nat.* i. p. 156 (1766); **et auctorum plurimorum** — *Temminck, Schlegel, Gould, Salvadori, Heuglin, Dresser,* &c.
Corvus spermologus, *Vieill. N. Dict. d'Hist. Nat.* viii. p. 40 (1817).
Lycus monedula (*Linn.*), *Boie, Isis,* 1822, p. 551.
Colœus monedula (*Linn.*), *Kaup, Natürl. Syst.* p. 114 (1829).

The pert Jackdaw, whose lively gambols in the air and familiar cries make it a favourite, breeds in most districts, both in Great Britain and Ireland, in inland localities as well as on the coasts, in forest districts as often as in rocky ones, in the busy thickly populated cities as much as in the quiet tower of the village church. It is not found as far as the Outer Hebrides, and appears only accidentally in the Shetlands, though sometimes in large flocks; but, according to Baikie and Heddle, a few pairs breed in Ronaldsha, one of the Orkneys. An occasional straggler sometimes reaches the Faroes, and, it is said, even Iceland; but these are obviously only stray birds which have accidentally wandered beyond their ordinary limits. The Jackdaw is usually a resident bird; but in the northernmost portions of its range it is a migrant; and it appears to be a bird which is gradually extending its range. In Mezen we were told that it had only appeared during the last twenty years.

On the continent the Jackdaw is distributed throughout Europe south of the Arctic circle, but becomes very local in the basin of the Mediterranean. It is found in all the countries of Europe, most of the islands of the Mediterranean, and has occurred as a straggler in the Canaries. Its northern range is greater in the west than in the east. Harvie-Brown and I, when at Mezen in lat. 66°, found the Jackdaw common, but we only saw one example at Uist Zylma in lat. 65°; and Hoffmann did not obtain it in the Ural Mountains north of lat. 61°. In Western Siberia Finsch found it as far north as lat. 60°; whilst in the valley of the Yenesay I did not observe it further north than Krasnoyarsk, in lat. 56°. The valley of the Yenesay is probably the eastern limit of its range. In North Africa, although collecters have not obtained it in Tangiers, Dixon found it in all the rocky parts of Algeria which he visited; but there is no reliable information of its occurrence in Egypt. Tristram met with it in Palestine, and Danford in Asia Minor. It is very common in South Russia and the

Caucasus, and breeds throughout Turkestan, although it does not appear to inhabit Persia. Colonel Swinhoe found it breeding at Kandahar; it also breeds in Cashmere, and is a winter visitant to the plains of North-west India.

Examples from Western Europe have the collar grey. To the east birds having exceptionally white collars are frequent; and in Central Siberia, between Krasnoyarsk and Irkutsk, a new form appears, slightly smaller on an average than our Jackdaw, and having the nape, the sides of the neck, the lower breast, and the belly white. This species (*C. dauricus*) extends eastwards as far as North China, and is everywhere found in company with *C. neglectus*, together with intermediate forms between the two, no doubt produced by interbreeding. The thoroughbred dark form differs in colour as well as in size from our Jackdaw, the grey on the head and neck being nearly obsolete. Ornithologists differ as to the explanation of these facts. Middendorff and Dybowsky consider the dark form (*C. neglectus*) an immature bird; and Dybowsky, who found it breeding, states that it does not obtain the mature dress until the third year. Swinhoe, on the other hand, states that he has taken young birds, with the characteristic markings of the adult, from the nest; and there is an example in his collection to bear out this statement. Probably Dybowsky was in error.

Like the House-Sparrow, the Jackdaw possesses the peculiar aptitude of speedily adapting itself to new surroundings, and often breeds in the strangest of places. It makes itself perfectly at home even in the great metropolis, where in certain localities it may be regularly seen amongst the grimy chimneys, or in company with the Rooks in the parks and public gardens. We also find Jackdaws in the forest nestling amongst the grand old oaks; we see them in the broken battlements of castles and in ruined abbeys, or amongst the gothic architecture of cathedrals and churches; whilst in the mountain-limestone districts almost every rock at all suitable for the purpose contains their nests. On the sea-coast Jackdaws are also common birds on all the bold rocks where sea-birds congregate. At Flamborough the Jackdaws are very abundant. A republican might call them the aristocracy of the cliffs. Like the modern noble or the monks of the middle ages, they contrive to eat the fat of the land without any ostensible means of living. They apparently claim an hereditary right in the cliffs; for they catch no fish and do no work, but levy blackmail on the silly Guillemots, stealing the fish which the male has brought to the ledges for the female, upsetting the egg of some unfortunate bird who has left it for a short time, and devouring as much of the contents as they can get hold of when the egg is broken on some ledge of rock or in the sea.

In its habits the Jackdaw very closely resembles the Rook, with which bird it freely associates; and its movements are just as regular. It is strictly gregarious and lives in colonies of greater or less extent according to the accommodation of the site selected. In the morning they may be seen passing through the air in rapid flight to their distant pastures, where they spend the day; and when evening approaches they collect together, and either join the large flights of Rooks or return by themselves to their own homes. Dixon gives the following description of this peculiar habit:—"I have often been struck with the great regularity of movement practised by the Jackdaw; and it is one of the most interesting sights an ornithologist can see, to take your station near some large haunt and watch the birds approach to roost. A large colony of Jackdaws live in the mighty limestone cliffs which are crowned with the now crumbling ruin of the Keep of the once famous Peveril Castle in the High Peak. Their nests are built in the holes of this inaccessible cliff, whose base is tunnelled by the famous cavern known as 'Devil's Hole.' Here at sunset perhaps not a bird can be seen, for they are away on the pastures; but as the darkness gathers their well-known cries disturb the air, and the birds appear in view flying closely together and perhaps accompanied by a few Rooks. Then may be seen their pleasing aerial motions; the whole flock seem in commotion, and buffet each other, wheel and glide and circle in the air, ere they perch a few at a time on the stunted trees growing out of the rocks. Then begins a noisy tumult—not in one long uproar, but in fitful clashes like a peal of bells—as the birds strive for points of vantage on the branches, or crowd each other off the rocks. Many will be seen to visit their nest-holes; but I do not think they roost in them, but summer and winter alike select the branches of these few trees for a roosting-place. Notice, too, how the birds sit in pairs, marks of affection often passing between them; for the Daw most certainly is mated to its partner for life. As darkness deepens the noise subsides; but even now the hoary old chasm will resound with their cackling notes as some fresh disturbance arouses the colony roosting so high above our heads."

The flight of the Jackdaw differs considerably from that of the Rook, and, indeed, from that of all the larger Crows. It is performed by a series of rapid flappings, very unsteady and wavering at times, but remarkable for its singular evolutions. The Jackdaw's wing is comparatively long and pointed; and the bird will glide with great rapidity from side to side or stoop like a Hawk, and then, bounding upwards with a peculiar sidelong motion, again pursue its course. The note of the Jackdaw is a cry something like *quick*, often varied with a shrill kind of scream. Although harsh, it is perhaps less so than that of the other Crows we have in our islands. It is said that in many districts the Jackdaw has driven away the Chough from its old haunts on our maritime cliffs; and it is not improbable that such is really the case.

The Jackdaw builds its nest almost wherever it can find a suitable hole, either in the cleft of a cliff, it matters not whether maritime or inland, or in a hole in a building, it may be new or ruined, naked or ivy-clad, or in a hollow tree, sometimes in the main trunk, sometimes in a side branch. Where the hole is too deep to suit its purpose it makes a foundation of sticks, and will sometimes deposit bushels of twigs to raise the level high enough. In places where no suitable hole is to be found the Jackdaw has been known to build in a rabbit-burrow.

Jackdaws breed in colonies like Rooks, and may be observed in the neighbourhood of their nests all the year round, frequently visiting them like those well-known birds. This bird is a later breeder than the Rook, seldom commencing operations before the beginning of April. The nest of the Jackdaw varies in its construction, and is adapted to the peculiarities of the hole selected. In some cases, where the hole is a small and shallow one, the merest rudiments of a nest are made, and the cavity contains a few stray twigs, and mayhap a little moss or withered grass; whilst in others, where the hole is larger, the nest is a bulky structure.

A large colony of Jackdaws breed in Sherwood Forest. That part of the forest which adjoins the village of Edwinstow is called Birklands, and is full of grand old oaks, which have spread their fantastic arms over bracken and heath for a thousand years, and which now, old and hoary and hollow and fast decaying, form a striking contrast to the elegant silver-stemmed birches growing between them and giving the name to the district. Some of these old denizens of the forest are very large. The "Major Oak" is about thirty feet in circumference of stem; and a hundred others are nearly as large. They are all, or nearly all, dead at the top and hollow, or full of hollow places. In these old oaks there are thousands of Jackdaws' nests (at a rough guess twenty thousand), as many nests of the Starling, a small sprinkling of those of the Stock-Dove, and a stray Kestrel and Owl which have escaped the lynx-eyes of the keeper. The Jackdaws generally make a most formidable nest—a foundation of oak-twigs, sometimes half a wheelbarrow load, and upon that a substantial lining of dry grass, roots, moss, and rabbit-down. A stranger to these woods would not be very successful in a search for eggs. In nine cases out of ten he would only obtain after a heavy climb a perspective view of an inaccessible nest full of eggs, at the bottom of a deep hollow trunk. It is only by obtaining the services of some one who knows the forest and can remember which nests are accessible that many eggs can be obtained.

The Jackdaw's nest is made of sticks, moss, grass, leaves, feathers, wool, together with the food-refuse pellets cast up by the birds, and which, in addition to being found in the nests, also strew the ground below them. Numbers of the nests will be built close together, in some cases as many as a dozen in one single hollow tree. The eggs of the Jackdaw are usually six in number, sometimes only four or five. They vary considerably in size, shape, and markings. Some specimens are bluish green in ground-colour, richly and boldly spotted and blotched with dark greenish brown, chiefly at the large end of the egg, and with a few violet-grey underlying spots; others are much paler in ground-colour, and have the markings smaller, deeper in colour, and more evenly distributed over the entire surface, deep greenish brown, olive-brown, and pale grey; whilst others are the palest of blue, almost white, and quite free from markings. Jackdaw's eggs are never so thickly and beautifully marked as Crow's or Raven's. They measure from 1·6 to 1·3 inch in length, and from 1·1 to ·95 inch in breadth. After leaving the nest the young birds are taken by their parents to the pastures, and keep company with them for some time, like Rooks.

The Jackdaw does not win much favour, and its reputed ill-deeds, on a much smaller scale of course than its larger congeners, are considered a sufficient excuse by the ignorant gamekeeper and farmer for taking its life. It is quite as harmless a bird as the Rook, and at certain seasons of the year is very useful. You have but to watch its actions in the fields to be convinced of this.

Like the Rook, the Jackdaw obtains by far the greatest portion of its food on the fields and pastures, and accompanies its congeners to these situations with precisely the same object in view. Its food consists largely of insects, worms, grubs, and even the parasites on cattle. It is to be seen on the turnip- and potatoe-fields, where the wire-worms are the object of its quest; whilst in sowing-time it goes with the Rooks to the newly sown land, and picks up the scattered grain that has escaped being covered by the harrow. In autumn the Jackdaw will eat fruit and also acorns and beech-mast; and in winter, when food is often hard to get, carrion or the refuse of slaughterhouses is eaten. On the coast the Jackdaw may often be seen, side by side with the Hooded Crow and the Rook, searching for shell-fish and other marine substances.

The Jackdaw has the crown of the head rich black, glossed with purple; the ear-coverts, nape, and sides of the neck are grey; the rest of the upper parts are black, with violet and green reflections, especially on the wings and tail; the underparts are dull black. Legs, claws, and bill black; irides greyish white. The female resembles the male in colour; but the grey nape-patch is not so large and pure in colour. Young birds are dull black, and the grey collar is almost absent.

Genus PICA.

The genus *Pica* is another of the genera "additional to those of Linnæus" which are admitted exceptionally under the Stricklandian code. It was defined by Brisson, in 1760 in his 'Ornithologia,' ii. p. 35; and the Common Magpie, his *Pica pica,* is universally admitted to be the type.

The Magpies are the representatives of several very nearly allied tropical genera (*Cyanopolius, Urocissa, Cissa, Dendrocitta,* &c.), all having a long graduated tail; but the latter have rounded or non-migratory wings. In the genus *Pica* the first primary is decidedly a bastard primary, generally slightly less than half the length of the second, and proportionally narrow. The bill is stout, the nostrils covered by bristly feathers, and the tarsus scutellated.

The Magpies are confined to the Nearctic and Palæarctic Regions, extending beyond the latter region to the Himalayas and South China. Only one species is found in Europe, which is subject to considerable variations in its wide range; but two fairly separable though very closely allied species are found—one in California, and the other in Algeria.

The Magpies do not differ much from the Crows in their habits, and, like those birds, are almost omnivorous. Although shy and wary, they are social, and are often found close to houses. The haunts they affect are well-wooded districts; but they sometimes frequent the moorlands and the coasts. Their flight is graceful and buoyant, and their notes are harsh and discordant, like the Crows. They build large bulky nests, domed and placed in the branches of lofty trees, as well as in bushes. Their eggs are from five to nine in number, and vary from pale greenish to pure white in ground-colour, spotted and streaked with greenish brown.

PICA CAUDATA.

MAGPIE.

(PLATE 16.)

Pica pica, *Briss. Orn.* ii. p. 35 (1760).
Corvus pica, *Linn. Syst. Nat.* i. p. 157 (1766).
Pica varia, *Gerini, Orn. Meth. Dig.* ii. p. 40 (1769).
Pica caudata, *Gerini, Orn. Meth. Dig.* ii. p. 40 (1769); *Keys. & Blas. Wirb. Eur.* p. 45 (1840); **et auctorum plurimorum**—*Gould, Yarrell, Giglioli, Gray, Blyth, Bonaparte, Middendorff, Fritsch, Lindermayer, Filippi, Doderlein, Tristram, Lilford, Schrenck, Radde, Salvadori, Shelley, Baird, Severtzow, Hartlaub, Alston, Harvie-Brown, Cavendish Taylor.*
Corvus rusticus, *Scop. Ann. I. Hist. Nat.* p. 38 (1769).
Pica rusticorum, *Forst. Syn. Cat. Br. B.* p. 48 (1817).
Pica melanoleuca, *Vieill. N. Dict. d'Hist. Nat.* xxvi. p. 121 (1818).
Pica europæa, *Boie, Isis,* 1822, p. 551.
Corvus hudsonius, *Sabine, App. Narr. Frankl. Journ.* p. 671 (1823).
Pica albiventris, *Vieill. Faun. Franç.* p. 119 (1828).
Garrulus picus (*Linn.*), *Temm. Man. d'Orn.* iii. p. 63 (1835).
Pica hudsonica (*Sabine*), *Bonap. Comp. List B. Eur. & N. Amer.* p. 27 (1838).
Pica bottanensis, *Deless. Rev. Zool.* 1840, p. 100.
Pica megaloptera, *Blyth, Journ. As. Soc. Beng.* xi. p. 193 (1842).
Pica media, *Blyth, Journ. As. Soc. Beng.* xiii. p. 393 (1844).
Pica sericea, *Gould, Proc. Zool. Soc.* 1845, p. 2.
Cleptes hudsonicus (*Sabine*), *Gambel, Journ. Acad. N. Sci. Phil.* i. p. 46 (1847).
Pica tibetana, *Hodgs. Ann. Nat. Hist.* iii. 1849, p. 203.
Pica varia japonica, *Temm. et Schl. Faun. Japon., Aves,* p. 81 (1849).
Pica japonica (*Schl.*), *fide Bonap. Consp.* i. p. 383 (1850).
Pica chinensis (*Schl.*), *fide Bonap. Consp.* i. p. 383 (1850).
Cleptes pica (*Linn.*), *Cab. Mus. Hein.* i. p. 229 (1851).
Pica leucoptera, *Gould, B. Asia,* pt. xiv. (1862).
Pica rustica (*Scop.*), *Dresser, B. Eur.* iv. p. 509 (1873).
Pica melanoleuca (*Vieill.*), var. hudsonica (*Sabine*), *Coues, Key N. Amer. B.* p. 164 (1872).
Pica caudata (*Gerini*), var. bactriana (*Bonap.*), *Severtz. Turkest. Jevotn.* p. 64 (1873).
Pica caudata (*Gerini*), var. hudsonica (*Sabine*), *Baird, Brewer, & Ridgw. N. Amer. B.* ii. p. 266 (1874).

Few birds are better known than the graceful, wary Magpie, although those seen in confinement give but a small idea of its elegant form and the almost matchless beauty of its plumage. The bird must be seen in its native haunts, flitting buoyantly and slowly over a breezy waste or the tops of the trees, or, perhaps better still, when searching the pastures for its food; then the rich variety of its dress lends a charm to the surroundings, and its chattering cry imbues them with life. The Magpie has the misfortune to be included in the list of those birds that are proscribed by the game-preserver and the poultry-keeper; hence its numbers are rapidly decreasing, and districts that once were its favourite retreats are quickly becoming deserted or have already ceased to afford it a congenial home. In spite of this persecution, however, the Magpie is fairly common, and breeds in almost all parts of England; but in the Channel Islands it appears to be very local. In Scotland, according to Mr. Gray, it is found in all the wooded districts from Wigtown to Sutherlandshire, and is very common in some parts of Ayrshire, although it appears not to visit the Outer Hebrides, and only occasionally to stray to Islay and Mull, where it does not breed. It has never occurred in the Orkneys or the Shetlands. In Ireland the Magpie is pretty common in suitable localities; and it would appear that it was formerly much rarer than it is at the present time, if not actually absent altogether, as the general belief in Ireland is that this bird was imported by the English.

The Magpie is found throughout the Palæarctic Region north of the Mediterranean, Syria, South Persia, and of the lowlands of Baluchistan; in the Oriental Region it is found in the Himalayas, Japan, South China, Formosa, and Hainan; and in the Nearctic Region it is found throughout the western United States, but only occurs east of the Missouri river in winter. In the north it extends up to and occasionally beyond the Arctic circle. It is migratory in the northern portions of its range; and on migration it appears that individuals occasionally stray beyond their usual limit, as it has been recorded from Egypt and Aleppo. Throughout its extensive range it is subject to slight variations; and two forms have apparently become sufficiently differentiated to rank as good species. The most distinct of them, *P. nuttalli,* is apparently confined to South California. Its only distinction from the common species appears to be that the bill and the naked skin behind the eye are yellow instead of black. In Morocco and Algeria *P. mauritanica* occurs, a species differing from typical examples of the common bird in being slightly smaller, in having no light patch on the rump, and the bare spot behind the eye more developed and blue in colour. The black rump, however, is a very doubtful character. The amount of white varies very considerably in European individuals, and is entirely absent from some specimens from Portugal and South Spain, and from Bhotan in the North-east Himalayas, birds from the latter district having been consequently described as a distinct species under the name of *P. bottanensis.* Besides these variations, there is a considerable difference in the extent of white on the primaries, and in the length of the first primary and the tail. The white on the primaries is most developed in birds from Siberia and Central Asia; and in some adult males from these localities it frequently extends to the point of the feather on some of the primaries. This form has received the name of *P. leucoptera.* The white is least developed in examples from Thibet, in one example in the British Museum not reaching within two inches of the end of any of the quills. To this form Hodgson gave the name of *P. tibetana*. Siberian and American birds have, on an average, the longest tails; to the latter the name of *P. hudsonica* has been applied. Most examples from the western Palæarctic Region have the second primary shorter than the innermost secondaries; whilst in examples from the eastern Palæarctic and the western Nearctic Regions it is as long or longer than they are; but examples having this peculiarity are occasionally found in the western Palæarctic Region. These four latter forms may possibly rank as subspecies, but cannot be considered species; and there seems to be some doubt if the two first mentioned are specifically distinct; for some of the Spanish birds may be considered somewhat intermediate, and examples having a yellow bill are said sometimes to occur in the British Islands.

The Magpie is not altogether a woodland bird, although it is the commonest in well-timbered districts, and especially in game-coverts thickly interspersed with tall trees. Parks are its favourite haunts; but it may often be seen beating in easy uncertain kind of flight over the moors, whence it retreats to the fir-plantations on the hillsides. In the pastures near these situations the Magpie may be often seen wandering about amongst the feeding cattle or even perched on the back of a sheep. If alarmed it usually betakes itself to the nearest cover, and always appears averse to flying any great distance. In autumn and winter flocks of Magpies are occasionally seen, generally before they retire to roost. Dixon has known these birds collect from wide stretches of country, and regularly repair at night to a small fir-plantation, where they evidently roosted. During the whole day not more than two birds were to be seen in company; but as night approached, by concealing himself under the trees, he saw them come to the trysting-place in pairs and little parties, alighting in noisy converse on the tree-tops, until by sunset at least a score individuals were gathered there for the night. *Apropos* of this gregarious instinct in the Magpie may be quoted the following rhyme:—

"One for sorrow,
And two for mirth;
Three for a wedding,
And four for a birth."

Although subject to such incessant persecution, the Magpie loves to frequent the neighbourhood of houses; and in many places, where it is left unmolested, it will come quite close to the threshold, and even rear its young in some tall bush open and exposed to the view of all. It is but rarely that the bird will allow you to approach within gunshot. Shy and wary, made timid by the knowledge that it receives no favour, it flits from tree to tree before you, sometimes alighting on the ground, but only to take wing again as you approach. Upon alighting it elevates its tail, which is often spread out like a fan and repeatedly wafted gently up and down. Even when no danger threatens, the Magpie is a restless bird, incessantly on the move—now down upon the ground or in the lower bushes, then up in the topmost branches, every movement usually accompanied by chattering cries.

Magpies often breed year after year in the same place. My earliest recollections of bird-nesting are associated with a pair of Magpies which bred every year in my father's garden. He was very fond of them; and in order to secure the young from being stolen by the children of the woolcombers in the neighbouring village, he used to send the under groom up the tree and have the young Magpies hung up in a cage in an old oak tree, where their parents regularly fed them—the right of property in birds in a cage being respected by these embryo poachers, who naturally looked upon trespass in pursuit of Magpies or game as an innocent crime. After many years' observation my father came to the conclusion that these Magpies were weather-wise, and that if they built their nest in a thick sycamore we might confidently calculate upon a stormy spring, whilst the position of the nest near the slender top of a lofty poplar was a sure indication of fine weather.

Although in the British Islands the Magpie is found almost everywhere, its breeding-grounds are to a certain extent restricted. To almost every variety of scenery Magpies lend a charm; but it is only in the wooded districts that their nests may be found in any great numbers. Sometimes, however, the bird will rear its young in hedges or in trees standing alone; or on the wide-stretching lonely moor its nest may not unfrequently be observed in the stunted bushes that, in spite of wind and storm, manage to take root in the scanty soil. But these places are exceptional. Almost every forest tree is used by this bird for a nesting-place. The towering oaks and elms in the wooded solitudes—the pines, the firs, and the alders, either in plantations or standing alone—the graceful silver birches, the mountain-ash, or the more lowly hawthorn, holly, and crab-tree—all in turn are selected to hold its large and bulky nest. More rarely it will build in tangled thickets; and in Norwegian Lapland, where the bird is protected, I have seen its nest under the eaves of houses, in heaps of brushwood, and in low bushes.

The Magpie is an early breeder, and begins to build towards the latter end of March or early in April. It probably pairs for life. The nest is usually placed on one of the topmost branches, and seldom near the trunk, unless in its most slender part. Here, in a suitable fork, the sticks are arranged which form the outside of the nest. These sticks are cemented with mud and clay, which also forms the first lining to the stick-built nest. More sticks are now added, until the nest itself is covered with a large dome or roof, yet not sufficiently dense to hide the eggs from view when the observer is but a short distance from them. At this stage the nest will most probably be left for a day or so ere the birds commence lining it with a bed of fine rootlets. No other materials but these are ever used by the Magpie in lining its nest; and they are placed so evenly that the eggs lie as bare and exposed as if in a basin. The nest is very bulky and almost impenetrable, from the fact that the birds usually select sticks with large thorns upon them. The nest-cavity is very deep for its breadth; and the hole in the side of the basket-like roof, just above the edge of the nest, is generally well concealed.

The eggs of the Magpie are exceptionally numerous. Dixon has, in a few instances, found as many as nine; but from six to eight is the usual number. They are very small in proportion to the size of the bird, many of them being no larger than exceptionally large eggs of the Blackbird. They vary from bluish to yellowish green in ground-colour, with greenish-brown markings thickly and evenly distributed over the entire surface. They are subject to considerable variation: some specimens are almost white, with a few pale olive-green markings at the larger end; whilst others are green in ground-colour, boldly marked with deep brown and a few faint underlying greyish-purple blotches. A less frequent variety is precisely like the eggs of the Pied Wagtail in colour. They measure from 1·45 to 1·25 inch in length, and from 1·0 to ·9 inch in breadth.

The Magpie only rears one brood in the season; but if the first clutch be destroyed, other eggs will be laid, this circumstance probably explaining the late broods of this bird that we sometimes meet with. Both birds sit upon the eggs, although the female performs the greater part of the duties of incubation. As soon as they are able to leave the nest the young birds are tended by their parents, who usually lead them to the neighbouring fields in search of food. When the nest of the Magpie is approached, should it only contain fresh eggs, the bird slips quickly off them; should she, however, be sitting, it often requires repeated blows on the trunk of the tree to dislodge her; and when the young birds are hatched, both the parents will fly round the tree at some considerable elevation uttering cries of alarm; and their actions become still more uneasy and troubled should the notes of the young birds be imitated by the observer.

The food of the Magpie is varied; and its propensity to feed upon any kind of fare too often costs the bird its life. It is charged with the destruction of newly born lambs and weakly sheep; but certainly the evidence that it does so is not very clear. In the poultry-yard and the game-covert, however, the mischief it works by carrying off the eggs and young chicks is a sufficient crime to render it liable to persecution. But when we bear in mind the numerous artifices adopted by birds for the safety of their eggs and young, we feel bound to admit that the Magpie's few small failings are amply counterbalanced by the good it undoubtedly performs. After its young are reared and the game-birds and poultry are well able to take care of themselves, the Magpie repairs to the pastures in search of noxious insects and grubs. It will devour snails and worms, and is said to take vermin from the sheep and cattle. In autumn it levies a trifling tribute from the fruit-trees, and will eat acorns and beech-mast. When hard pressed for food, it will not object to carrion, and has been known to take small birds, whilst in sowing-time it may often be seen on the land picking up the grain.

The note of the Magpie is a harsh chatter, most frequently heard at nightfall, when the birds are about to seek a roosting-place; but in the breeding-season it is said to utter a softer and more pleasant note.

The Magpie, according to Sebright, affords an excellent quarry for hawking; and in his well-known work a most interesting description of this sport may be found.

The typical form of the Magpie has the head, neck, back, and breast rich black glossed with greenish reflections; the scapulars and belly are pure white; the lower part of the back and rump are greyish white, the upper tail-coverts and the wings black, the latter richly glossed with green and having an elongated patch of pure white, varying in length, upon the inner web of each feather. The tail, which is much graduated, is dull black below, but iridescent above on both webs of the two central feathers, and on the outer web of all the others, and beautifully glossed with greenish bronze and purple, and having a subterminal band of violet-black. The under tail-coverts and thighs are dull black. Bill, legs, toes, and claws black; irides dark brown. The female and young birds resemble the male.

Genus GARRULUS.

The genus *Garrulus* is one of those genera which were established by Brisson, and which are additional to those recognized by Linnæus. The explanation of Rule 2 of the Stricklandian code asserts that they "are therefore of perfectly good authority," but most illogically omits to explain why the genera of other contemporaries of Linnæus, "which are additional to those in the twelfth edition" of the great naturalist's works, are not of equally good authority. Linnæus did not separate the Jays from the Crows, but included both in his genus *Corvus*; but Brisson had established for the former in 1760 the genus *Garrulus* in his 'Ornithologia,' ii. p. 46, calling the Common Jay *Garrulus garrulus,* thereby designating it as the type.

The Jays belong to the short-winged group of the Corvinæ, in which the tail is always more than three fourths of the length of the wing. From the Magpies, which belong to the same group, the Jays are easily distinguished by having the tail only slightly rounded and not longer than the wing. The upper tail-coverts, except in some Indian species, are white. The bill is stout; and the tarsus is scutellated. The most characteristic feature of the Jays is their wing-coverts, which are barred with blue, black, and white. The nostrils are covered by bristly feathers.

The true Jays are confined to the Palæarctic and Oriental Regions. The genus contains about twelve species, some of which are divisible into subspecies. Only one species is found in the British Islands; but two others are found in Eastern Europe, and a fourth in North Africa.

Like the rest of the Corvinæ, the Jays are almost omnivorous. They principally frequent woods, where their harsh cries are heard, and where they breed, though rarely at any great elevation. Their nests are composed of twigs lined with roots; and their eggs are greenish white with brown spots and streaks.

GARRULUS GLANDARIUS.

COMMON JAY.

(PLATE 16.)

Garrulus garrulus, *Briss. Orn.* ii. p. 47 (1760).
Corvus glandarius, *Linn. Syst. Nat.* i. p. 156 (1766); **et auctorum plurimorum**—
(*Gray*), (*Bonaparte*), (*Cabanis*), (*Schlegel*), (*Gould*), (*Dresser*), &c.
Glandarius pictus, *Koch, Syst. baier. Zool.* i. p. 99 (1816).
Garrulus glandarius (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 18 (1816).
Lanius glandarius (*Linn.*), *Nilss. Orn. Suec.* i. p. 75 (1817).

The Jay is one of the most beautiful of our native birds; but on account of its proneness to pilfer from gardens and orchards and occasionally to strangle a young Pheasant or Partridge, it finds no mercy from the gamekeeper or gardener, and doubtless from this cause is decreasing in numbers. It is still found more or less commonly in all the wooded parts of England, and in some districts appears even to be increasing in numbers, as, for instance, in North Lincolnshire; but in Scotland it has of late years become much rarer. According to the facts collected by Mr. Lumsden ('Scottish Naturalist,' iii. p. 233) the bird is evidently extending its range northwards. In the days of Macgillivray the woods skirting the Grampians were apparently its northern limits; but now it occasionally ranges north of this boundary. It is only in the counties of Forfar, Perth, the central parts of Argyll, Dumbarton, parts of Stirling, Clackmannan, and Kinross that the Jay is at all common; and throughout the country, from the reports received, it appears that the bird is less common than it used to be, most observers stating that incessant persecution is the cause. It has once been observed in Shetland, and also in Caithness, but cannot be traced to the Orkneys, nor does it ever appear to visit the Outer Hebrides or the Western Isles. It is only in the southern half of Ireland that the Jay somewhat locally occurs, although, according to Thompson, the bird evidently at one time bred in the northern portions of the island.

The geographical distribution of the "true Jays" forms the subject of a very interesting map placed as a frontispiece to Wallace's 'Island Life.' It must not, however, be supposed that all the species whose range is there denoted are nearly allied to our bird. We may reject *Garrulus lidthi* as not being a true Jay at all; *G. lanceolatus* may be also dismissed as subgenerically distinct from our bird, having quite a different pattern of colour on the wings, tail, and head; *G. bispecularis, G. sinensis,* and *G. taivanus* are local races of the tropical form of our Jay, which have become completely differentiated from it, having lost every trace of black on the head except on the cheeks. The rest of the Jays, with one or more forms then unknown to Wallace, are nothing but local races of our Common Jay.

The typical form of the Common Jay is a resident bird throughout Europe except in the south-east. In Scandinavia it is found as far north as the Arctic circle; in Russia up to lat. 63°, ranging eastwards to the valley of the Volga. Eastwards through South Siberia, the valley of the Amoor, and the north island of Japan, extending southwards into North China, *G. brandti* occurs, differing in being greyer on the back, and in having the ground-colour of the head and nape rich chestnut, instead of pale vinous on the former shading into darker vinous on the latter. In the south island of Japan, however, the European form almost reappears, *G. japonicus* differing from our bird only in having the ground-colour of the head somewhat whiter, and in having the black on the cheeks extending upwards to the lores. In Eastern Turkey, Asia Minor, the Caucasus, Palestine, and South Persia a black-headed Jay is found, *G. atricapillus*, which principally differs from our bird in having the crown and nape black and the feathers of the forehead and throat nearly white. In Asia Minor many examples (*G. anatoliæ*) have the darker forehead and throat of our bird, but retain the black head. On the south-western shores of the Caspian the Jays have the upper and underparts a much richer vinous, and the black feathers of the head have indications of rufous margins. This species I have named *G. caspius*, which is represented further to the south in North Persia by *G. hyrcanus*, which is still richer in colour, and has the margins to the dark feathers of the head almost as much developed as in the typical form. A slightly modified form is also found in Algeria, *G. cervicalis*, differing principally from the Common Jay in having the cheeks much whiter, the feathers on the crown almost entirely black, and the nape a much richer rufous than the back. It is probable that all these forms interbreed whenever they get the opportunity. In Asia Minor intermediate forms occur between *G. anatoliæ* and *G. atricapillus*. Bogdanow states that the Jay which is found in the valley of the Kama, and which he names *G. sewerzowii*, is intermediate between *G. glandarius* and *G. brandti*; and Messrs. Alléon and Vian say that in the neighbourhood of Constantinople intermediate forms between *G. glandarius* and *G. atricapillus* occur. The peculiarity in the present species which makes it somewhat exceptional is that the Siberian bird (*G. brandti*), instead of being an arctic, has the appearance of being a tropical form, which may possibly be accounted for by its being only found in the extreme south of Siberia.

The Jay is essentially a bird of the woods. Like most showy birds, it loves seclusion and finds a congenial haunt in our game-coverts, forests, and shrubberies. Woods thickly interspersed with large clumps of hollies are favourite places of this bird; and in these situations if you do not meet with it, you have but to thank the cruel gamekeeper and observe the bird's gaudy plumes swaying to and fro in the wind as it hangs nailed in the keeper's "museum," in company with a whole army of weasels, Magpies, and a few Sparrow-Hawks and Kestrels, once ornaments of the solitudes around you. The Jay is also found in the large shrubberies near houses, especially if a thick growth of underwood is there, whence at nightfall you may often hear its discordant scream as it searches out a roosting-place. It is a very shy and timid bird; and nine times out of ten its note is the only sign of its presence, or mayhap you will catch a hasty glimpse of its varied plumage as it flits noisily away into the deepest parts of the cover.

Sometimes, especially in spring, fortune may favour you, and you will see a regular gathering of these noisy birds. It is their pairing-time; and by exerting the utmost caution you may approach them sufficiently close to hear their warbling notes, confined to this season. It is only at this time that the Jay displays a social disposition; and the birds may often be heard to utter a great variety of notes, some of the modulations approaching almost to a song. But their wariness is none the less; and if you unwittingly tread upon some dead twig, or cause a branch to rustle, the whole troop, greatly alarmed at your intrusion, scurry off, and their harsh screams, now faint and indistinct in the distance, are the only signs of their presence. The usual note of the Jay is a harsh discordant scream, a hoarse *rake, rake*, or sometimes a clever imitation of some of the notes of the other birds of the forest. Respecting this presumed imitative power of the Jay numerous observations have been made by careful naturalists. Montagu states that he has heard the bird imitate the mewing of a cat, the hooting of an Owl, or the neighing of a horse; Bewick has heard it copy to a nicety the sound made by a saw; whilst other observers have heard it utter correct imitations of the notes of various singing-birds. In confinement (where the bird is often seen) these powers are even more fully displayed; and consequently the bird is a great favourite. The Jay becomes noisiest in the evening; and its discordant notes may then be heard together with those of the Pheasant and the Magpie. Numbers of the birds call together, or answer each other from different parts of the cover, and, with the note of the Wood-Owl and the purr of the Nightjar, make a concert sounding singularly uncanny amidst the gloom of the forest. The flight of the Jay is a somewhat laboured one, performed very irregularly and with rapid beatings of the wings. The Jay's peculiar flight is seen to the greatest perfection when the bird is flying in the open; for in the thick cover they appear to scurry off amongst the branches, anxious to conceal themselves as soon as possible. In spring the Jay may sometimes be observed to fly at a considerable elevation above its native woods, and, suddenly closing its wings, to shoot downwards like an arrow into the cover below. Although capable of long-sustained flight, in this country it rarely flies far, preferring to go from tree to tree or to pursue its way through the tangled undergrowth. When perched in a tree the Jay sits well upright, its tail sometimes wafted to and fro, its head constantly turned from side to side, and its crest erected or depressed, its restless actions showing its wariness and timidity at being so far from cover. When thus perched the Jay can sometimes be approached very closely; and it is a noteworthy fact that singularly beautiful and conspicuous as the bird's plumage is, it is rarely seen until its harsh note proclaims its departure to a safer retreat.

Like all its congeners, the Jay wins no favour from the game-preserver or gardener, although there is little doubt that its ill-deeds are greatly exaggerated by its persecutors. In summer, when the garden-fruits are ripe, the Jay appears to overcome its wariness and ventures near our houses to satisfy its appetite for this fare. In the game-coverts it is charged, and with some reason, with the serious offence of devouring young Pheasants and sucking the eggs not only of small birds but also of game. This makes the keeper its sworn enemy, who never loses a chance to shoot or trap a Jay. Dixon has seen the Jay in close pursuit of a Great Titmouse, who only escaped capture by taking refuge in a thick bush; and on other occasions he has seen it strike at small birds, only apparently deterred from following up the chase by the presence of a human being. In autumn the Jay is extremely fond of acorns, beech-mast, and nuts, which it will sometimes hide in holes of the ground or in crevices, burying one here and there; but whether the bird ever returns to these buried stores is difficult to say. In winter the Jay subsists upon whatever it can find. At this season it may often be seen clinging to the sides of pea- and bean-stacks; and if hard pressed, carrion will not be refused. In the early part of the year the Jay is indeed the farmer's and gardener's friend; for he lives almost entirely on worms, grubs, and noxious insects, searching for them both in the open pastures and under hedges and bushes—perhaps, by the way, the only time the Jay visits the ground, where it is not seen to walk, like the true Crows, but to pursue its way in a series of hops.

It is very probable that Jays pair for life. At all seasons they may be observed in pairs; and the noisy gatherings of these birds early in the year, probably for the purpose of pairing, are most likely composed of single birds and the young of the previous season. Further, pairs of these birds will frequent one locality and regularly nest in certain places, provided you do not molest them. In April, when the woodlands are rapidly becoming dense and secluded under a thick canopy of foliage, the Jay searches out a site for its nest. This is rarely at any great height from the ground. Unlike the Crow and the Rook, the present species almost always selects a suitable situation in the lower branches of the tall hollies, yews, fir trees, or whitethorns, or in a thick hazel bush. Sterland mentions a nest he found at the top of a beech tree, 50 or 60 feet from the ground. A favourite place for a Jay's nest is in some thick clustering mass of woodbine growing over a shrub; and it has been said to nest in a hole of a tree; but this was probably only where the hollow was much exposed. Sticks (not so coarse, however, as those used by the Magpie), sometimes cemented with mud, and fibrous roots are the materials used. In form the Jay's nest is cup-shaped, deep, and very bulky. It is generally very neatly made, and on the same model as the nests of the Bullfinch, the Hawfinch, and the Sparrow-Hawk. The coarsest twigs are selected for the foundation. As the construction of the nest proceeds, finer and finer twigs are chosen; and, finally, the lining is composed of roots, which often project above the outside structure. The eggs are laid by the latter end of April, more frequently in the first or second week of May, and are from five to seven in number. They are bluish green in ground-colour, usually evenly and thickly speckled over the whole surface with olive-brown, and sometimes marked with a few streaks of rich brown. Some specimens are not so closely marked and have a greener appearance, as more of the ground-colour is visible; whilst others have the greater part of the spots collected in an indistinct zone round the egg. They vary in length from 1·35 to 1·2 inch, and in breadth from 1·0 to ·85 inch.

At most times of the year the Jay is a noisy bird, and its harsh screams are ever heard, reminding the observer of its presence; but in the breeding-season its habits undergo a marked change in this respect. It is rarely heard to call, save when alarmed, during the whole period of incubation, and keeps so close to the cover that it will build in the shrubberies close to our houses, and we are only made aware of the fact when the old birds lead their noisy young through the trees. Only one brood is reared in the season; and usually the old birds and their young form a family-party, and keep together through the autumn and winter.

The migrations of the Jay are an interesting feature in its history; and although the bird's flight appears so slow, uncertain, and laborious, it is a fact that, in some autumns, the bird passes over enormous distances. In the 'Zoologist' for 1883, p. 1, a most graphic account bearing on this portion of the Jay's economy may be found, from the able pen of Mr. John Cordeaux. From observations which he has been able to collect from various sources, but chiefly from that veteran observer of bird-life, my friend Mr. Gaetke of Heligoland, he establishes most clearly the fact that the bird is a migratory one—not from its northern forests in Scandinavia, but from the east, across Germany, from the forests of the Oder and the Vistula, and probably from the eastern limits of its range. From this able article we learn that great numbers of Jays passed Heligoland in the autumn of 1876. In the words of Gaetke, "Thousands passing the island; some landed, caught; coming, never ending." Since that date the bird does not appear to have been observed at Heligoland until last autumn, when immense numbers occurred again, Gaetke stating that "a perfect storm of Jays has passed over and on both sides of the island, during the last three days. No one living has ever seen the like here." In Norfolk, Stevenson remarks that at times the resident Jays are sometimes largely increased in numbers in autumn; and this naturalist gives an instance, coming under Messrs. Shepphard and Whitear's observation, of an enormous flight of these birds that appeared in that county. As to the cause of this singular movement on the part of the Jay we are at present in the dark; but it may possibly be a similar one to that which influenced the extraordinary migration, or rather emigration, of the Sand-Grouse—that is, a superfluous population in search of a home.

The Jay has the head covered with a long crest, whitish buff in colour, each smaller feather tipped with black, which in the more elongated ones becomes a median stripe; and in the hinder feathers these stripes merge into vinaceous brown freckled and barred with a darker shade. The nape, scapulars, and back are vinous brown; the rump and upper tail-coverts pure white; the tail black, indistinctly barred on the basal half with blue; the primaries are dull black, margined with white; the secondaries are glossy black, each with an elongated white patch on the basal half of the outer web; the innermost secondary is chestnut, obliquely tipped with black; the wing-coverts are black on the inner web, but barred alternately on the outer web with black, white, and blue. On each side of the gape is a broad moustachial patch of black; the chin and throat are dull white; the breast and belly are pale vinous, darkest on the flanks; and the vent and under tail-coverts are white. Bill blackish horn-colour; legs, feet, and claws brown; irides pale blue. The female resembles the male in colour; and the young birds, even in their nestling or first plumage, do not strikingly differ from their parents.

Genus PYRRHOCORAX.

Linnæus included the Choughs in his genus *Corvus*; but they had been previously separated by Brisson and placed in a new genus, to which he gave the name of *Coracia*. This name cannot be used, in consequence of its bearing too close a resemblance to the Linnæan genus *Coracias*, which contains the Rollers. The first author after Linnæus who separated the Choughs appears to have been Scopoli, who in 1769 established for their reception the genus *Gracula*. This name must also be rejected, in consequence of its having been in 1735 applied by Linnæus to the Cormorants, and in 1758 by the same naturalist to a genus of Starlings; both which names have been so extensively used by later writers as to make it unadvisable to retain the name for a third genus. We therefore fall back upon the name *Pyrrhocorax*, which was first used in 1771 by Tunstall in his 'Ornithologia Britannica,' p. 2, and afterwards in 1816 by Vieillot in his 'Nouveau Dictionnaire d'Histoire Naturelle,' vi. p. 568. As the Common Chough was the only bird of the genus known to Tunstall, it must be accepted as the type.

The Choughs belong to the long-winged group of the Corvinæ, in which the tail is always less than three fourths the length of the wing. The Choughs are scarcely separable generically from the Crows, but are said to have the nostrils placed lower in the maxilla, nearer to its lower edge than to the culmen, while in the Crows the position is the reverse. The Choughs may be readily distinguished from all the other Corvinæ by their red or yellow legs and bills. From the Orioles they may be separated by the covered nostrils, which in those birds are bare and exposed. The bill is comparatively slender and somewhat curved; the tarsus is scutellated.

The Choughs inhabit the southern half of the Palæarctic Region, encroaching on the Ethiopian Region in Abyssinia, and on the Oriental Region in the Himalayas and China. The genus contains but two species, one of which is a resident bird in, and the other very doubtfully recorded as a straggler to the British Islands.

The Choughs are principally inhabitants of mountainous districts, and more rarely of rocky coasts. In habits and food they do not appear to differ much from their congeners, but are possibly not quite so omnivorous. They are shy and wary birds, gregarious at all times, and also freely congregate with allied species. Their nests, placed in clefts of rocks, are made of sticks, roots, hair, moss, wool, &c.; and their eggs, from four to five in number, vary from greenish to pure white in ground-colour, with brown spots and purplish-grey shell-markings.

PYRRHOCORAX GRACULUS.

THE CHOUGH.

(Plate 16.)

Coracia coracia, *Briss. Orn.* ii. p. 3 (1760).
Corvus graculus, *Linn. Syst. Nat.* i. p. 158 (1766); **et auctorum plurimorum**—*Schlegel*, (*Bonaparte*), (*Cabanis*), (*Fritsch*), (*Heuglin*), (*Sharpe*), (*Dresser*), &c.
Corvus eremita, *Linn. Syst. Nat.* i. p. 159 (1766).
Gracula pyrrhocorax, *Scop. Ann. I. Hist. Nat.* p. 42 (1769, *nec Linn.*).
Coracias montana, *Gerini, Orn. Meth. Dig.* ii. p. 38, pl. clii. (1769).
Pyrrhocorax graculus (*Linn.*), *Tunst. Orn. Brit.* p. 2 (1771).
Corvus docilis, *Gmel. Reis. Russl.* iii. p. 365, pl. 39 (1774).
Graculus eremita (*Linn.*), *Koch, Syst. baier. Zool.* i. p. 91 (1816).
Fregilus graculus (*Linn.*), *Cuv. Règne An.* i. p. 406 (1817).
Coracias erythroramphos, *Vieill. N. Dict. d'Hist. Nat.* viii. p. 2 (1817).
Fregilus europæus, *Less. Traité*, p. 324 (1831).
Fregilus erythropus, *Swains. Classif. B.* ii. p. 268 (1837).
Coracias gracula (*Linn.*), *Gray, Gen. B.* ii. p. 321 (1846).
Fregilus graculus, var. orientalis, *Dybowski, Journ. Orn.* 1868, p. 332.
Fregilus graculus, var. brachypus, *Swinh. Proc. Zool. Soc.* 1871, p. 383.

The Chough is another of those birds that are becoming rarer in our islands from no apparent cause. The encroachment of man, as Mr. Gray justly remarks, can scarcely be a reason for its disappearance; for the bird's haunts are practically inaccessible and are usually places far removed from his industries. It is, however, worthy of note that most observers agree that the Chough's decrease has been marked by an increase of another rock-bird, the Jackdaw; but whether this be merely a coincidence, or an instance of the weak being driven off and replaced by the strong, is a matter for investigation. Formerly the Chough bred in many inland localities in England; but now it is only known to frequent a few favoured spots on the coast. Years ago the bird bred on almost all the suitable cliffs of the south coast; but at the present day most of its breeding-stations are deserted. It still breeds in Cornwall, the north of Devon, on Lundy Island, and at many places on the Welsh coast, in Glamorgan, Pembroke, Anglesey, Flint, Denbigh, and possibly on the rocks of the Calf of Man. On the east coast of England, More states ('Ibis,' 1865, p. 132) that a few pairs were known to nest near Fast Castle in Berwickshire, and Hancock corroborates the statement, whilst in the Channel Islands the bird, although local, still breeds. In Scotland it appears to have been much commoner quite recently than at the present time, and to have now completely deserted its inland haunts, being only found on the ocean cliffs. It formerly haunted Burrow Head, the Mull of Galloway, Troup Head, and St. Abb's Head in considerable numbers; but now in some localities only a few pairs remain, whilst in others the bird has vanished altogether. The great stronghold of the Chough is in the island of Islay. On the west coast of Skye (which locality now appears to be its northern limit in our islands), in Wigtownshire, and Kircudbrightshire a few pairs are still known to breed. Although found in the Long Island in Macgillivray's day, it is now absent, as also from Coll, Rum, and Canna and other stations on the Western Islands. In Ireland its numbers have also decreased. It appears to have deserted all its inland haunts, and only a few chosen places on the coast and the adjacent islands are now frequented by it; but it is still common on the coasts of county Kerry, and I specially remember its abundance on the magnificent cliffs at Sybil Head, west of Dingle.

The Chough is essentially a bird of the rocks, and is in no part of its range a migratory species. In the British Islands it finds suitable haunts on the coast; but on the continent it breeds almost exclusively on the mountains. It is found in the Pyrenees, the Alps, the Apennines, and the mountains of Sicily and Sardinia, the Carpathians, the Parnassus, the Caucasus, and the Urals, and on many of the intervening lesser ranges of hills. In the Atlas and the Aurès, Abyssinia, the rocky mountains of Arabia Petræa, and the hills of Persia, the mountain districts of Southern Siberia, Turkestan, the Himalayas, Mongolia, Tibet, and North-east China the Chough also breeds. It appears to be a maritime bird only on the Atlantic coast. South of the British Islands Saunders records it from Belle Isle, on the coast of Brittany. It also breeds in Palma, one of the Canaries (exceeding 7000 feet above the level of the sea); but here it is said to nest in the clefts of the sides of the crater and not on the coast. It is a mistake to suppose that Belle Isle is the *only* maritime resort of the Chough outside of the British Islands. It is certainly a maritime bird in South-west Portugal. Dresser mistranslates the account of this colony given by Dr. E. Rey (Journ. f. Orn. 1872, p. 145)*. Accidental wanderers are occasionally caught in other parts of Europe. The Chough is a southern bird; and there is no evidence whatever of its being found north of lat. 58° except in Scotland. The stories of its having been seen in the Archangel government are no doubt myths. Sabanäeff distinctly states that in the Ural Mountains the northern limit of its range is

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* Dresser says:—Dr. Rey writes, "At the end of the valley I found the nests, but in a place where I could not possibly reach them." The correct translation has an entirely different meaning, and is:—"*Outside* the valley I found the nest-colony, but unfortunately in an absolutely inaccessible part of the *coast*."

Tagilsk, the chief locality where the celebrated iron-mines of Prince Demidoff are situated.

The Chough of Eastern Asia and China (var. *orientalis*) has been separated on the ground of its having a shorter tarsus and foot. This seems, however, to be principally a question of sex, the female having a shorter tarsus than the male. Examples from the Himalayas were described as a distinct species by Gould (Proc. Zool. Soc. 1862, p. 125), under the name of *Fregilus himalayanus*. This local race is undoubtedly worthy of mention, although it can only be regarded as a subspecies, as intermediate forms are found. Specimens from Europe and China measure from $11\frac{3}{4}$ to $10\frac{1}{4}$ inch in length of wing; whilst those from India vary from $13\frac{1}{4}$ to $11\frac{1}{4}$ inch. Birds from intermediate localities are intermediate, however, as a series from Asia Minor, Persia, and Turkestan vary from $12\frac{1}{4}$ to $11\frac{1}{4}$ inch.

The Chough, like the Rook and the Jackdaw, lives in colonies. Its haunts are the tall beetling cliffs, the rugged rocks which descend sheer down into a boiling sea and are quite inaccessible to all but the most intrepid cragsman or venturesome oologist eager to enrich his cabinet with "British-taken" specimens of its eggs. A haunt of the Chough is usually also a sea-bird's haunt. On the face of the stupendous cliffs the Puffin and the Guillemot sit quietly; and lower down the noisy Kittiwakes ever and anon flutter into the air and join the black-coated Choughs, whose notes mingle with the cries of the sea-birds and the dull roar of the ever-restless waves below.

Dixon met with the Chough in Algeria, and made the following notes of its habits there:—"It was not until we reached the highest parts of the Djebel Aurès that we met with the Chough. At Constantine the place seems admirably suited to its needs; but the Jackdaw is the only *Corvine* inhabitant of these magnificent rocks. When making the ascent of Djebel Mahmel, some twelve miles south-east of Lambessa, we observed quite a colony of the birds in a low ridge of rocks, on the side of one of the barren stony valleys near the snow-capped summit of this fine mountain. Fifty or more birds could be seen in the air together, beating slowly along the rugged face of the cliffs; and every now and then one or two would enter their nest-holes, or just as frequently a pair would fly hurriedly out of them. How the birds obtained a sustenance up in these sterile mountain solitudes might well give cause for wonder; yet we could repeatedly see them upon the stony ground apparently in search of food. I sometimes noticed one of the birds as it flew along the cliffs drop suddenly down amongst the rocks; but, as they were exceedingly shy, I could never get an opportunity of finding out the cause of the bird's visit to the earth: it may have been to capture a small insect or beetle or a locust. Upon another occasion we met with a smaller colony of Choughs in that portion of the Aurès known as the 'Cedar range,' south-west of Batna. This colony had its headquarters at the very summit of one of the highest mountains, in a ridge of rocks commanding a fine view of the forest-clad hills. As we slowly rode up the steep path on our mules, the report of our guns as we occasionally secured a specimen of some bird startled the Choughs from their nests in the rocks far above us, and they commenced circling about in the air, displaying great powers of flight; and their shrill notes resounded through the woods, echoing again amongst the rocks. I now and again saw them alight upon the little open spaces of herbage, searching amongst dung for insects and beetles. Although living amidst the cedar-forests, I never noticed the birds alight in the branches, but always on the rock-shelves, or in the crevices, in which they doubtless build their nests. It should be mentioned that the Jackdaw is very rare in both the localities above mentioned; and it *may* be that bird's abundance at Constantine that explains the Chough's absence."

When I was at St. Jean de Luz last spring with my friend Howard Saunders, we drove about five miles to the base of the steep part of the hill, and then, leaving our conveyance, we proceeded on foot. We soon entered the clouds that enveloped the mountain; and after a long and tedious walk winding along a mule-track through the "Scotch mist" or sea-fog, we at length found ourselves on the top of la Petite Rhune in brilliant sunshine. The most interesting birds were the Choughs, which did not seem to be very rare. We very frequently heard their notes—a Jackdaw-like cry like *khēē'-ŏ, khēē'-ŏ*. We had no chance of a shot at them: they were very wild, and flitted about the rocks far away beyond range; they would not allow us to come near them, though they never took long flights. When they did fly, they moved their wings somewhat irregularly and rapidly, as if their bodies were heavy, the exact opposite of the Kite, which we had watched at intervals on the same ascent. On the rocks their movements were light enough, toying with each other and sometimes tumbling over each other like big black butterflies at play.

The Chough, like the Rook, leaves its roosting-place early in the morning, and repairs to the neighbouring pastures in search of food, sometimes even being seen to follow the plough to pick up worms and grubs. It is always a restless and a wary bird, never remaining long in one spot, but shifting its ground in short uncertain flights. Upon the ground it walks about like a Rook, often mingling amongst the browsing sheep and cattle, and turning over their droppings in search of insects or grain.

The food of the Chough consists of beetles, the various animals to be obtained on the shore, worms, grubs, caterpillars, berries, grain, and even, it is said, carrion, although we have no direct evidence to prove that such is really the case.

The Chough is seen in pairs at all seasons of the year; and there can be little doubt that it is mated to its partner for life. Its breeding-season in our islands commences early in May. The nesting-site is often in the most inaccessible part of the cliff, where the rocks overhang and drop down almost smooth as a wall to the ocean below. Macgillivray and Newton, however, state that the bird will make its nest in buildings; and it is very possible that, as with the Jackdaw, these situations were a favourite choice in the legendary days when the bird was a resident of the inland districts. The nest is usually placed in some crevice or hole in a rock, sometimes at a considerable distance from the opening, where it is absolutely impossible to obtain the eggs. It is made of sticks and heather-stems, and lined with dry grass, roots, and wool, sometimes with hair. It is often a large structure, but, as is usual with birds nesting in holes, seldom very compactly made. The eggs of the Chough are from three to six in number. They range from creamy white to greenish white in ground-colour, spotted with brown of various shades, and dashed with underlying markings of purplish grey; they vary considerably as to the amount of markings upon them. In some eggs the spots are large and bold, scattered irregularly over the surface; in others they are finer and more evenly dispersed, or are collected together in a mass at the larger end, many of them being confluent. One egg in my collection (from Rathlin Island) has almost the whole of the colouring-matter distributed in small underlying markings; and the entire egg is suffused with a delicate rosy tinge. Some specimens have a few dark streaks upon them. They measure from 1·65 to 1·4 inch in length, and from 1·15 to 1 inch in breadth. That the Chough will sometimes breed in confinement is proved by an interesting note communicated to the 'Zoologist' (1882, p. 431) by Miss Nevill.

The Chough has the entire plumage rich black, beautifully glossed, especially on the upper parts, with steel-blue; the wings and tail, in addition to the steel-blue gloss, also display violet and purple reflections. The beak, which is long and curved, and the legs and feet are vermilion-red; claws black; irides brown. The female does not differ from the male in colour, but may do so a little in size, being a trifle smaller. Young birds resemble the adults, but are duller, and the plumage exhibits but little gloss. The beak and legs when the bird is very young are, according to Mr. Lumsden, quoted by Dresser, brownish orange, gradually becoming reddish orange as the bird gets older, then finally red.

One specimen of the Alpine Chough (*P. alpinus*) has been twice recorded in the pages of the 'Zoologist' (1881, pp. 422, 471, and 1882, p. 431). It appears to have been shot by a keeper at Broughton Castle, Banbury, Oxfordshire, on the 8th of April 1881. Although the appearance of the bird bore no evidence of its ever having been kept in confinement, still great doubt must attach to the example in question; for *P. alpinus* is not a migratory species, and, further, is a bird very likely to be imported into this country. It is found in the mountain-ranges of Southern Europe and the Himalayas, and may always be distinguished from the British species by its short yellow beak. The egg of this bird has been figured (Plate 16) for the sake of comparison with that of the British species. I found it breeding in the Parnassus.

Genus NUCIFRAGA.

The genus *Nucifraga* was established by Brisson in 1760, in his 'Ornithologia,' ii. p. 58. He designated the Common Nutcracker as the type, calling it *Nucifraga nucifraga.* This genus contains only four species, easily distinguished from the British Corvinæ by their spotted throats and black-and-white tails. They belong to the long-winged group of the Corvinæ, in which the tail is less than three fourths the length of the wing. The bill is rather long, straight, and pointed; the nostrils are covered with bristly feathers; and the tarsus is scutellated.

The Nutcrackers are confined to the Palæarctic Region and to the Rocky Mountains in the extreme west of the Nearctic Region. But one species is found in Europe, which is an accidental straggler to the British Islands.

The Nutcrackers inhabit the northern forests, and in more southern latitudes the mountain-forests. Their habits resemble those of the Jays; but they are not so omnivorous as the rest of the Corvinæ, feeding chiefly on nuts and fruits. Their notes are harsh and shrill. Their nests are large cup-shaped structures; and their eggs are greenish or bluish white, spotted with brown.

NUCIFRAGA CARYOCATACTES.

NUTCRACKER.

(PLATE 16.)

Nucifraga nucifraga, *Briss. Orn.* ii. p. 59 (1760).
Corvus caryocatactes, *Linn. Syst. Nat.* i. p. 157 (1766); **et auctorum plurimorum** — (*Temminck*), (*Naumann*), (*Gould*), (*Gray*), (*Salvadori*), (*Dresser*), (*Sharpe*), (*Newton*), &c.
Nucifraga guttata, *Vieill. N. Dict. d'Hist. Nat.* v. p. 354 (1816).
Caryocatactes maculatus, *Koch, Syst. baier. Zool.* i. p. 93 (1816).
Nucifraga caryocatactes (*Linn.*), *Leach, Syst. Cat. Mamm. &c. Brit. Mus.* p. 18 (1816).
Caryocatactes nucifraga, *Nilss. Orn. Suec.* i. p. 90 (1817).
Caryocatactes guttatus (*Vieill.*), *Nilss. Skand. Faun.* i. p. 149 (1835).
Caryocatactes caryocatactes (*Linn.*), *Schl. Rev. Crit.* i. p. lv (1844).

The Nutcracker has very little claim to be considered a British bird; but as nearly a score examples have been seen or obtained in various parts of England and Scotland, it may be looked upon as an irregular straggler to our islands during the autumn migration. The Nutcracker is essentially a forest bird; and is found in all suitable localities throughout the Palæarctic Region, but very rarely breeding north of the Arctic circle. In Norway it has not been recorded north of lat. 64°; but in Sweden it has been observed as far north as lat. 67°. Harvie-Brown and I did not find it in the Petchora; but Dr. Hoffmann observed it in lat. 62° near the sources of that river. In the valley of the Yenesay I found it between lat. 64° and 67°; Dybowsky mentions its abundance near Lake Baikal; Middendorff found it as far east as the Stanavoi Mountains, north of the sea of Ochotsk, about lat. 64°; and Schrenck and Radde found it common in the valley of the Amoor. In Europe it breeds in the pine-forests of South Norway and Sweden, on some of the islands in the Baltic, and probably also in the mountains of Southern Spain and Sardinia. It certainly breeds in the Black Forest, in the Alps, and the Carpathians, and probably also on all the mountains of Central Asia. The Nutcracker appears everywhere to be a resident; but in autumn the birds gather together in large flocks, which frequently wander very far from home, especially during winter, when they irregularly appear in various parts of Europe, Japan, and North China.

In Cashmere the Nutcracker is represented by a very nearly allied species, *Nucifraga multipunctata,* differing only in being considerably larger in size, and in having the white on each feather much more developed and the brown much darker. To the south-east, in the Himalayas, where the climate is more tropical and the rainfall much greater, our bird is replaced by *N. hemispila.* This is as large a bird as the preceding; but the change in the colour of the plumage has been in a diametrically opposite direction; for the brown parts are browner, and the white on the feathers is less developed.

The Nutcracker is one of those birds to which a special interest seems to attach, in consequence of the mystery which for so many years surrounded its nest and eggs. When Naumann wrote his great work on the birds of Germany, and Macgillivray published his wonderful 'History of British Birds,' nothing whatever was known of the nidification of the Nutcracker. We have consequently only very meagre accounts of this bird from the two great ornithologists, who, more than any others, seem to have combined an intimate acquaintance with the life-history of birds in their native haunts, founded on a habit of accurate observation and the necessary opportunities for its exercise, with the requisite literary ability and the patient mastery of detail without which it is impossible to write graphically on these interesting subjects. Of late years, however, a flood of light has been thrown on the history of this bird. Not to mention many excellent articles in continental publications, it is only necessary to refer to the interesting accounts communicated by Prof. Newton of the discovery of the nest in Bornholm by Pastor Theobald (Proc. Zool. Soc. 1862, p. 207), and of the eggs two years later (Proc. Zool. Soc. 1867, p. 162, pl. xv. fig. 2), and an equally interesting account of the discovery of both nest and eggs in the Black Forest by Herr Schütt (Ibis, 1862, p. 365, translated from the 'Journal für Ornithologie'). In the face of such interesting and elaborate details, Morris's account of the Nutcracker, in the second edition of his 'British Birds,' published in 1870, "revised, corrected, and enlarged," in which this bird is represented as being "*dispersed throughout America,*" and breeding "*in holes of decayed trees, which they scoop out like the Woodpeckers,*" can only be looked upon as the work of an impostor.

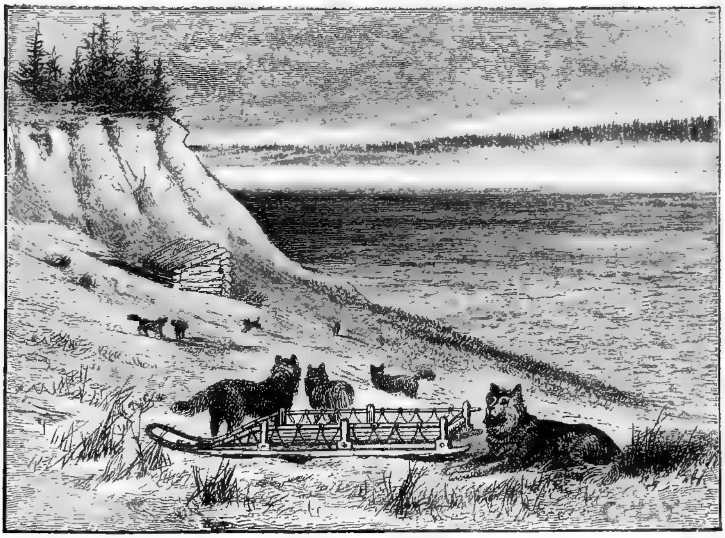
The Nutcracker is one of those birds which seems entirely to change its habits during the breeding-season. In winter it is remarkable for its extraordinary tameness. During my visit to Siberia in 1877 I saw a great deal of this bird. As we sledged over the snow above the ice down the Yenesay in April, we saw the first Nutcracker in lat. 64°. From that time we rarely missed these birds at the different places where we stopped to change horses. At most stations one or two were silently flitting round the houses, feeding under the windows amongst the Crows, perching on the roof or on the top of a pole, and, if disturbed, silently flying, almost like an Owl, to the nearest spruce, where they sat conspicuously perched on a flat branch, and allowed themselves to be approached within easy shot. I had no difficulty in securing eight examples with which to give my "muddle-headed Hebrew" lessons in bird-skinning. When we reached our steam-yacht the 'Thames,' we found them quite common and remarkably tame. Outside the door of the sailors' room half a dozen were busy picking amongst the refuse thrown out by the cook. Their tameness was quite absurd. They allowed us to go within three feet of them; and sometimes they even permitted us to touch them with a stick. They are wonderfully sociable birds. At one time I counted as many as eight in one tree together. Whilst the sailors were working at the ship, cutting away the ice all round her, there were frequently two or three Nutcrackers in different parts of the rigging, apparently watching the operations with great interest. They seem to be well aware of the fact that scraps of food are always to be picked up where men are congregated. Sometimes the Ostyak children shot one with a bow and arrow; and now and then one was caught by the dogs. On the bushes round the houses they allowed us to approach within four or five feet of them, and when disturbed moved to the nearest tree with a peculiar slow, undulating, Jay-like flight. In the forest they flew from tree to tree, screaming at each other. They have two distinct notes, both harsh enough. One, probably the call-note, is a little prolonged and slightly plaintive—a sort of *kray, kray*; the other is louder and more energetic, and appears to be the alarm-note—a *kr-kr-kr*, almost as grating to the ear as the note of a Corncrake. I was anxious to obtain a series of Nutcracker's eggs; so all through May, whilst the snow was deep on the ground, I carefully protected them, and fed them with the bodies of the birds which I skinned. I even took the trouble to cut up the bodies into small pieces for them, and was delighted to find how eagerly they devoured this food; but they treated me in a most ungrateful manner. They continued to be abundant until about the 7th of June, when the snow was pretty well melted from the ground; they then vanished altogether; and, with the exception of a couple of birds I picked up (one on the 25th of June in full moult), I saw no more of them until they reappeared in flocks migrating south in August. The breeding-season of the Nutcracker in the Arctic regions is evidently June and July—at least ten weeks later than in Central Europe. Where they retired to breed I was unable to discover; but it was doubtless on the higher ground which forms the watershed between the Obb and the Yenesay, and between the latter river and the Lena, far from the haunts of men—Russian or Ostyak, who all come down to the great rivers to fish as soon as the snow melts and the ice breaks up.

The Nutcracker, like most other members of the Crow family, is almost omnivorous. Caterpillars, wasps, and insects of various sorts have been taken from its stomach. Its favourite food is the seeds of the Siberian cedar, which it extracts from the cone with its bill very dexterously. It also eats nuts, acorns, berries, and even land-shells of various kinds. It has also the reputation of robbing the nests of other birds of their eggs and young.

When I was in Copenhagen both Mr. Benzon and Pastor Theobald gave me an animated account of their discovery of the nest of the Nutcracker. It seems always to choose a not very tall pine tree, and there, from 18 to 25 feet from the ground, it builds a bulky nest on a branch against the stem. The outside diameter is about a foot, and the outside depth about five inches. The hollow containing the eggs is four inches in diameter, and from one and a half to two inches deep. The foundation is composed of lichen-covered twigs of larch and spruce, finished off with fresh birch-twigs, and lined with dry grass and the inner bark of trees with a little loose earth; the final lining is grass, generally dry, but sometimes fresh. At the nest the birds are extremely shy and quiet. All their former trustfulness and familiarity is gone, and they flit noiselessly about the forests, approaching and leaving the nest in the most wary manner possible. It is said never to utter a cry unless its nest is threatened. Eggs have been taken in Central Europe from the 10th of March to the 27th of April. Herr Schütt, speaking of the nest which he found in the Black Forest, says:—"It was about 25 feet from the ground, and was built close to the stem, and was difficult to see from below. It was found on the 19th of March; the first egg was laid on the 23rd, the second on the 26th, and the third on the 29th. On the 1st of April, no further egg having been laid, the boy, to my regret, took the nest. When we first found the nest the bird did not utter a cry until we were close to its treasures, when we heard it in the distance; and an hour after we had left it the cries of the bird were still to be heard. When the nest was taken it did not fly off until the boy was climbing up the tree, when it perched upon the top of the tree and saw the fate of its nest without uttering a cry." The duties of incubation are said to devolve upon the female alone, who sits very close and is assiduously fed by the male.

The number of eggs varies from three to five. They are very pale bluish white in ground-colour, sometimes creamy white, thickly spotted with olive-brown, and freckled over most of the surface with faint underlying markings of violet-grey. Some specimens are much more sparingly marked than others, and have the spots chiefly on the large end and very small. In others a few of the surface-spots are large, intermingled with smaller markings of the same colour; and in one specimen in my collection there are traces of a streak of rich brown. They vary from 1·4 to 1·26 inch in length and from 1·0 to ·92 inch in breadth. The eggs of the Nutcracker very closely resemble a certain type of the egg of the Magpie; but the ground-colour appears always to be paler in the Nutcracker's—in about the same proportion that a Starling's egg bears to a Rose-coloured Pastor's. From pale varieties of the Jackdaw's eggs they may be distinguished by the much finer grain of their shell, which is also thinner, and from the sparingly marked eggs of that bird by their never having the spots so rich and deep in colour.

The general colour of both the upper and underparts of the Nutcracker is chocolate-brown, thickly spotted, except on the crown and nape, with white (these spots are largest on the breast and least developed on the rump); the under tail-coverts are pure white; the wings are black glossed with green, some of the secondaries being tipped with white; the tail is rich black, the two central feathers narrowly and the others broadly tipped with white; the white on the tail-feathers varies considerably in extent. Bill brownish black; legs, toes, and claws black; irides brown. The female is similar in colour to the male. Young birds resemble their parents; but the brown parts are duskier, and the white parts are not so pure.



Genus ORIOLUS.

The genus *Oriolus* was established by Linnæus in 1766, in his 'Systema Naturæ,' i. p. 160, to contain the Orioles and other more or less distantly allied birds. Vieillot appears to have been the first ornithologist who removed from this genus several groups of birds which had been previously generically characterized by Brisson. In 1816 Vieillot, in his 'Analyse d'une nouvelle Ornithologie élémentaire,' p. 33, restricted the genus to its present dimensions, designating Le Loriot (*Oriolus galbula*) as the type. Ornithologists differ in opinion as to the position of the Orioles; but there seems to be no valid reason for removing them from the Corvinæ, of which they form a somewhat aberrant genus. As regards the average length of the wings and tail the Orioles form an intermediate group. The chief distinction between the genus *Oriolus* and the other genera in this subfamily is the fact that the nostrils are exposed and the sexes are different in colour; but the latter may possibly not be an important character. Like the rest of the Corvinæ, they appear to have a spring moult. There is nothing in the bill or feet to separate the Orioles from the allied genera; but the tarsus may be, on an average, slightly shorter. The prevailing colours are also very different, being principally yellow or red variegated with black.

The Orioles appear to be essentially a tropical group of birds. There are about forty species and subspecies known, of which fifteen are resident in the Oriental and about the same number in the Australian Region, seven reside in the Æthiopian Region, and two of the species which inhabit the first-named region also extend their range into the extreme south of the Palæarctic Region. One species alone appears to be confined to the Palæarctic Region during the breeding-season; this is the only species found in Europe, and is a rare summer visitor to the British Islands.

The Orioles are found in gardens, groves, the outskirts of woods, orchards, and other well-cultivated places. Their food consists principally of insects and caterpillars; but fruits of various kinds are eaten. Their call-notes are clear and musical; and many species rank amongst the finest songsters. They build open cup-shaped nests in the forks of branches. These nests are skilfully woven, and made of roots, grass, vegetable fibres, and lined with hair, moss, feathers, &c. Their eggs, from three to five or six in number, vary from pure white to cream- and salmon-colour, spotted with liver-brown and with purplish underlying markings.

ORIOLUS GALBULA.

GOLDEN ORIOLE.

(PLATE 11.)

Turdus oriolus, *Briss. Orn.* ii. p. 320 (1760).
Oriolus galbula, *Linn. Syst. Nat.* i. p. 160 (1766); **et auctorum plurimorum**—*Naumann, Gray, Bonaparte, Schlegel, Gould, Salvadori, Sharpe, Dresser, Newton,* &c.
Coracias oriolus (*Briss.*), *Scop. Ann. I. Hist. Nat.* p. 41 (1769).
Coracias galbula (*Linn.*), *Bechst. Naturg. Deutschl.* i. p. 1292 (1805).
Oriolus galbula (*Linn.*), var. virescens, *Hempr. & Ehr. Symb. Phys. Aves,* fol. z (1829).
Oriolus aureus, *Brehm, Vög. Deutschl.* p. 156 (1831).

The Golden Oriole breeds throughout most parts of the continent of Europe south of the Baltic, though comparatively few remain to spend the summer in the extreme south. In South Finland it breeds as far north as lat. 63°; but in Russia it has not been found north of lat. 60°. It is only known as a very rare straggler to Sweden, and appears never to have occurred in Norway, although it is said once to have been obtained in Iceland. It breeds in suitable localities in Holland, France, Germany, Spain, Portugal, Italy, Austria, South Russia, the Caucasus, and, south of the Mediterranean, in Algeria. It appears sometimes to wander to the Azores. Eastwards its breeding-range extends through Persia, Turkestan, and Southern Siberia as far east as the Tian-Shan Mountains and the Altai. My Siberian collector has obtained a specimen at Krasnoyarsk; Taczanowski says that he has seen an example from Irkutsk; and Radde states that in the museum of the Siberian section of the Russian Geographical Society there are examples from the same neighbourhood. The Golden Oriole passes many of the islands of the Mediterranean, Greece, Asia Minor, Palestine, Egypt, and Nubia on migration, and winters in Africa as far south as Madagascar, Natal, and Damara Land.

The Golden Oriole has numerous allies, which may be distinguished by having black on the head and nape. The species most closely allied to it is *O. kundoo,* which partially replaces it in Turkestan, and ranges eastwards to India. It may be distinguished by having the black of the lores extending round and behind the eye, and by having the black on the outside tail-feathers nearly or quite obsolete. In Africa, south and east of the Sahara as far as the equator, it is represented by *O. auratus,* which is replaced by another closely allied species, *O. notatus,* throughout the mainland of South Tropical Africa. Both these latter species may be distinguished by their yellow lesser wing-coverts, which are black in the European and Indian birds, *O. notatus* being distinguished by not having the black bases to the outer tail-feathers, which are uniform yellow.

It seems probable that the Golden Oriole was never much more than an accidental summer visitor, or at most a rare straggler during the breeding-season, to our islands. Though it is common in South Finland, it seems, for some reason or other, very rarely to cross the Baltic into Sweden; and though it may be seen every day in Holland, the English Channel apparently presents difficulties in the way of its further migration northwards, which it does not often attempt to surmount. Its late arrival on the continent is also an argument against its having a northerly range. I have repeatedly noticed, when birds'-nesting on the continent, that those birds whose breeding-range extended to Britain or Scandinavia were the earliest to breed, whilst those whose eggs I was most anxious to obtain, those whose breeding-range did not extend to our islands, were very late in arriving. At Brunswick the Golden Oriole did not arrive until the 5th of May; and at Valconswaard we did not hear its well-known song before the 13th of May, some time after many of the earlier migrants already had eggs. We found the first Golden Oriole's nest on the 25th of May, containing only two eggs, and the second on the same day, with only one egg in it. Another was brought to us on the 27th with only two eggs, and a fourth on the following day with four eggs; and it was not until the 29th that we found one containing five eggs. Naumann says that this bird is one of the first to leave North Germany in autumn, migrating southwards in August. Even in such a southerly latitude as Smyrna, where it is only known as passing through on migration in spring and autumn, Krüper says that it is seen from the middle to the end of April, and again on the return journey from the last week of July to the first week of September. It is therefore not to be wondered at that this handsome bird is not oftener seen in England.

Though it frequents the trees in the gardens close to the houses and on the roadsides, it is a very shy and skulking bird, and is not often seen on the wing. Its presence, however, is at once revealed by its unmistakable song, though even in regard to this some little caution must be exercised, as in places where it is a common summer visitor I have heard an excellent imitation of it produced by a Starling. Although careful to conceal itself, it by no means avoids the haunts of man, and I have often heard the song and caught an occasional glimpse of the bird in the trees almost in the middle of Düsseldorf and other large continental towns. At Valconswaard we most frequently saw it crossing the road from one oak tree to another. Its voice is marvellously rich and flute-like. The call-note during the pairing-season sounds like the words "Who are you?" in a full rapid whistle; and its song is a *wheet, li, vee-o,* whence its vernacular name in Holland of "Kiel-i-vee-vo." Some slight modifications in its song are apparently produced by prefixing or interluding its call-note. It is a pity the song is so short; for in quality it is scarcely exceeded by the song of any other bird. Naumann describes its ordinary call-note as a clear *gyake, yake, yake,* and its alarm-note as a harsh *khrr*.

The food of the Golden Oriole is principally insects; but in autumn it is very fond of fruit, especially cherries.

The nest of the Golden Oriole is unlike that of any other European bird. This wanderer from the tropics, the date of whose immigration into the Palæarctic Region is probably comparatively recent, seems to have retained his tropical habits of nest-building. The nest is perhaps more curious than beautiful. It is most artistically made; but the art is that of the mechanical kind. The nest is always suspended from the fork of a horizontal branch, sometimes of a pine tree, but generally of an oak, and is usually placed from twenty to thirty feet above the ground. The outside is composed of broad sedges and strips of inner bark, which are wrapped round the two branches forming the fork from which the nest is pendent. I have generally found intertwined with these long narrow strips a few withered leaves, and almost invariably a scrap or two of a Dutch newspaper. The lining is composed of the slender round grass-stalks, very frequently with the flower of the grass attached. It is said that the male relieves the female in the duties of incubation, and drives off any intruder with great daring. It has the general reputation of being a quarrelsome bird, and in spring the males are often seen fighting either for the possession of the females or for the range of some favourite plantation. Like the Jay, the Golden Oriole has some peculiarities which are not altogether Corvine. His flight is undulating, not straight; and on the ground he hops, not walks.

A full clutch of eggs is usually four or five. They are creamy white in ground-colour, sometimes with an almost imperceptible tinge of pink, sparingly spotted with very dark purplish brown. The spots vary considerably in size and shape, but are almost invariably well defined; on many specimens there are a few underlying spots of purplish grey. The shell is somewhat rough in texture, but highly polished. They vary in length from 1·35 to 1·1 inch, and in breadth from ·93 to ·8 inch. The eggs of the Golden Oriole cannot be mistaken for those of any other British bird.

Dixon made the following notes on this bird:—"In Algeria the Golden Oriole haunts the palm-studded oases, full of tropical verdure, equally as much as the groves of timber on the sides of the noble Aurès Mountains. It is one of the shyest birds I know; and usually the observer has to content himself with a hurried glimpse of its beautiful plumage, as, like a flash of burnished gold, the bird glistens in the bright sunlight a moment, and then disappears in the gloom. At this time of the year (May) all the Orioles seem in pairs, and fly from grove to grove in company.

In the charming oasis of Biskra the Golden Oriole was a very common bird, and frequented the thickest part of the government garden there. It would sometimes stay in the dense foliage of the trees until I wandered beneath them. But notwithstanding its showy dress, it was a most difficult bird to discover in the branches; and a flutter of wings overhead, a hasty glimpse of yellow in the leaves, and it had gone. I sometimes flushed it from the ground, where it was possibly searching for food. At Lambessa it frequented the tufts of evergreen oaks on the borders of the forest; and there very often its charming song, heard at dawn and even, filled the air around with gladness. Its habits and flight are very similar to a Thrush."

The general colour of the Golden Oriole is rich golden yellow; from the base of the bill to the eye is a black streak; the wings are black; the primary-coverts have the terminal third of each feather yellow, forming a conspicuous spot on the wing; the outer edge of the primaries (except the two outermost) and the tips of the secondaries are yellowish white; the two central tail-feathers are black, except at the base, which is dull greenish yellow, and the tip, which is bright yellow; the other tail-feathers have the basal two thirds black on the outer web and about a third of the inner web in the centre black, the remainder bright yellow. The amount of black on the tail varies considerably. Bill dull orange-red; legs, feet, and claws dark brown; irides red. The female is said by most ornithologists to differ considerably from the male. In what is taken to be the adult plumage the upper parts are olive-green, brightest on the upper tail-coverts; the black patch at the base of the bill is replaced by dusky brown; the wings are duller and browner than in the male, and the secondaries and wing-coverts are tinged with green; the spot on the wing is dull white; the tail is similar to that of the male, but the colour is duller and not so clearly defined. The throat, breast, and centre of the belly are greyish white; the flanks and under tail-coverts are bright yellow, and the throat, breast, and flanks are streaked with dark brown. Young birds resemble this plumage of the female. Birds in nestling plumage have the upper parts olive-brown, spotted with yellow; the underparts are yellowish white, streaked with brown; the flanks and under tail-coverts bright yellow; the wings and tail similar to the adult's. It is extremely probable that the female Golden Oriole is similar to the male in colour when fully adult; but the mature plumage is more slowly acquired, the above-described plumage of the female being nothing but an intermediate phase.

Subfamily LANIINÆ, OR SHRIKES.

The Shrikes and their allies form a considerable group of birds whose exact affinities are very difficult to determine. The general form of the bill resembles that of the Crows; but in the typical Shrikes it is much more decidedly hooked and has the upper mandible deeply notched. The wings vary from flat pointed migratory wings to rounded concave sedentary wings; the first primary is sometimes very small, but usually well developed. The tail is generally much graduated. The tarsus and feet resemble those of the Crows and Tits. The young in first plumage in some species differ but slightly from the adults, whilst in others this difference is more marked, the upper and underparts being more or less barred and spotted and the colours generally less brilliant.

It is very difficult to obtain accurate information respecting the moulting of the Shrikes; but it seems probable that the Great Grey Shrike, which can scarcely be called a migratory bird, has a regular autumn moult, whilst the Woodchat, the Red-backed and the Lesser Grey Shrikes appear to be anomalous in this respect. These birds migrate in their worn and faded breeding-plumage, and are said to begin to moult immediately upon their arrival in their winter quarters; but the process appears to be a slow one, as birds which have not completed their moult are sometimes obtained as late as the beginning of spring.

The Laniinæ are an Old-world group of birds. A few species are found in the Nearctic Region; but they can only be regarded as stragglers from the Palæarctic Region. They are tolerably well distributed over the Palæarctic Region; but by far the greatest number of species are found in the Ethiopian, Oriental, and Australian Regions. They number about two hundred and fifty species and subspecies, of which eight are found on the continent of Europe; five of these, all included in the genus *Lanius*, are British.

Genus LANIUS.

The genus *Lanius* was established in 1766, by Linnæus in his 'Systema Naturæ,' i. p. 135, for the reception of a heterogeneous collection of birds, many of them belonging to different and somewhat distantly connected families. From this motley group Cuvier removed the Tyrant Shrikes in 1801; and Vieillot restricted the genus to its present dimensions in 1816, in his 'Analyse d'une nouvelle Ornithologie élémentaire,' p. 40. Vieillot designated *le Pie-Grièche grise* (*Lanius excubitor*) as the type.

In the genus *Lanius* the bill very closely resembles that of a Falcon, but is elongated like that of a Crow, the upper mandible being strongly hooked and deeply toothed; the nostrils are partly hidden by short feathers and stiff bristles like those of the Crows; the wings and tail are very variable.

This genus contains about forty species. It is well represented in the Nearctic, Palæarctic, Ethiopian, and Oriental Regions, but is apparently absent from the Australian and Neotropical Regions. Six species are found in Europe, one of which is a regular summer visitant to the British Islands, whilst four others are only accidental stragglers to our shores.

The Shrikes are birds closely resembling the Raptores in many of their habits. They are solitary birds, and frequent the outskirts of wooded districts and the bushes on commons, usually perching on the topmost twigs, like Flycatchers, to secure their food, which consists of large insects (beetles) and, more rarely, small birds, mice, frogs, and lizards. They have the peculiar habit of spitting their captures on thorns or placing them in the forks of branches, for the purpose of securing them while they pull them to pieces. Their call-notes are harsh; but many species are possessed of considerable musical powers. They build somewhat bulky open nests, placing them in bushes and tall hedgerows; the nests are constructed of twigs, rootlets, the stems of plants, sometimes with the flowers attached, and are lined with hair, wool, and feathers. Their eggs are very characteristic, boldly spotted with brown of various shades on a ground-colour varying from nearly white to buff or pale green.

LANIUS MAJOR.

PALLAS'S GREY SHRIKE.

Lanius major, *Pallas, Zoogr. Rosso-Asiat.* i. p. 401 (1826); **et auctorum plurimorum**—*Cabanis, Taczanowski, Brandt, Meves, Reinhardt, Collet, Schalow, Seebohm,* &c.

Lanius excubitor, var. major, *Pall., Radde, Reis. Süd. Ost-Sibir.* ii. p. 274 (1863).

Lanius borealis europæus *et* Lanius borealis sibiricus, *Bogdanow, Monogr. Russian Shrikes and their Allies,* p. 102 (1881).

Lanius excubitor, *Linn.,* juv., **auctorum multorum**—*Dresser, Sharpe, Newton,* &c.

Pallas's Grey Shrike is as distinct from the Great Grey Shrike as the Carrion-Crow is from the Hooded Crow. Its distinctness is recognized by nearly all modern continental ornithologists. In both cases the allied species interbreed where their geographical ranges meet; and the existence of intermediate forms has caused some ornithologists to consider them in each case only subspecifically distinct; and if we are to attach any definite meaning to the word species, this is unquestionably the fact. The correct scientific name of Pallas's Grey Shrike is *Lanius excubitor,* var. *major,* as that of the Hooded Crow is *Corvus corone,* var. *cornix*; but there is no harm in using the binomial name for the sake of brevity, so long as the fact that it is only a contraction of the correct name is not forgotten. It is difficult to explain the perversity of British ornithologists in persisting to ignore the differences between these two Grey Shrikes. Sharpe and Dresser state that the young of the Great Grey Shrike has only one wing-bar; but in their description of the young bird they do not allude to this fact, which is probably a pure myth. In Dresser's collection is a skin of a *nestling* of a Great Grey Shrike from Baden, in which the white at the base of the secondaries is as much developed as in typical skins of fully adult birds; and similar examples are in the British Museum. Newton quotes Sharpe and Dresser without venturing to correct their blunder, but betrays a suspicion of the unreliable nature of their statements by saying that young birds *often* have the double white spot on the wing feebly developed. It seems very extraordinary that none of these writers should have discovered that the Grey Shrikes with only one wing-bar, which are found in England, Scotland, and various parts of Europe, were nothing more or less than Pallas's Grey Shrike.

This Shrike, like so many other Siberian birds, is an accidental visitor to West Europe, but one which has occurred so frequently that it may almost be looked upon as a regular through rare straggler. It is very likely that many of these Siberian species breed in Europe, in the valleys of the Upper Petchora and the Kama, districts of the ornithology of which we are for the most part profoundly ignorant. In the case of the Grey Shrikes, however, this would not appear to be the case; for two examples obtained by Hoffmann (one in lat. 63½° and the other in lat. 64½°, on the western slopes of the Ural Mountains) are identified by Bogdanow, than whom a more competent judge could not be found, as *L. excubitor* (see his excellent Monograph of the Russian Shrikes and their allies, p. 135).

There are several examples of Pallas's Grey Shrike in the museum at Edinburgh. Gray, in his 'Birds of the West of Scotland,' mentions having seen at least two dozen examples of Scotch-killed Grey Shrikes with only one wing-bar. In Mr. Borrer's collection are two examples killed in Sussex. It has been shot near Cardiff; my friend Mr. Backhouse has an example in his collection obtained near York; and in the British Museum is an example killed in this country. So far as is known, all these examples have been obtained in autumn, winter, or early spring. On the continent it has been found at Sarepta in March, in the Crimea in December, in the Baltic Provinces at the end of August, near Stockholm in autumn, near Bergen in October, besides many localities in Germany, Austria, &c.

Pallas's Grey Shrike breeds throughout Siberia south of lat. 65°, where it is a partial migrant, wintering in Turkestan. Examples from the Tchuski Land, Kamtschatka, Vladivostok, Lake Baikal, Krasnoyarsk, and Toorokansk appear to be thoroughbred; but many of the examples obtained on Heligoland and near Constantinople on migration are decidedly intermediate, and are probably the result of the interbreeding of the Great Grey Shrike with Pallas's Grey Shrike somewhere in North-eastern Europe. It is, however, possible that the birds breeding in North-eastern Europe, or even in North-western Siberia, may be an intermediate race; but two examples obtained by Finsch in the valley of the Obb appear to be one a half-bred and the other a quadroon. In Turkestan Pallas's Grey Shrike is represented by a near ally, Eversmann's Grey Shrike (*Lanius mollis*), and in North America by the Great Northern Shrike (*Lanius borealis*). Both these forms are distinguished by never losing the vermiculations on the underparts, which are only found in immature examples of Pallas's Grey Shrike, and by having the colour of the upper parts much darker and browner. In South-west Siberia, extending eastwards to Lake Baikal and southwards into Turkestan, another Grey Shrike, the White-winged Grey Shrike (*Lanius leucopterus*), resides. Instead of having the white on the wing less developed than in the Great Grey Shrike, it is much more so. This is especially noticeable on the secondary quills, which have the basal half of both webs and nearly the entire inner web pure white. The range of the White-winged Grey Shrike overlaps that of Pallas's Grey Shrike about the middle of the valley of the Yenesay; but the two birds appear to have become so far differentiated as to have lost the power (or at least the desire) to interbreed. In South-east Russia the ranges of the White-winged Grey Shrike and of the Great Grey Shrike impinge; and on the Lower Volga by far the greater number of examples are intermediate forms between them—which have been described as a new species under the name of *Lanius homeyeri*, and which occur sparingly in Siberia. There is every reason to believe that these intermediate forms are the result of interbreeding. If this be so, we have the interesting fact that, whilst the two extreme forms *L. major* and *L. leucopterus* are so different that they no longer interbreed and are therefore specifically distinct, they both interbreed with the intermediate form *L. excubitor*, which is therefore only subspecifically distinct from either of them. Curious as this mutual relationship of these three Grey Shrikes is, many explanations might be easily imagined. The probable one is, that the Grey Shrike which inhabited the Palæarctic Region before the Glacial epoch was during that period driven southwards and isolated in three colonies—one in South Europe, one in Turkestan, and one in Eastern Mongolia. The difference produced directly or indirectly from the change in the surroundings seems, in this instance, to have been somewhat similar to what appears to be the rule in the variations in birds which extend across the Palæarctic Region. The western form varies considerably from the central form; but in the east, instead of the variation increasing, it diminishes, and the western form reappears with comparatively slight modifications. After the passing away of the ice, the central colony, *L. leucopterus*, does not seem to have spread northwards again to any great extent; but the other two colonies appear to have extended their ranges round it, until they met somewhere near the Ural Mountains.

Of the habits of Pallas's Grey Shrike little can be said. They probably do not differ materially from those of its near allies. As I travelled along the banks of the Yenesay from Yenesaisk to Krasnoyarsk and across country to Tomsk, Grey Shrikes were very abundant; but it is difficult to say to which species they belonged. I had no opportunity of shooting any; but as the skins sent me since from this locality belong to both species, I probably saw both. They were very conspicuous birds, often perched on the extreme summit of a small tree, and extremely fond of the telegraph-posts and telegraph-wires.

Of the nest and eggs of Pallas's Grey Shrike nothing definite appears to be known.

The thoroughbred adult male is a handsome bird, differing from the Great Grey Shrike in having a white rump and with the white bases of the primaries of less extent than in that bird, whilst the white bases of the secondaries are altogether absent.

LANIUS EXCUBITOR.

GREAT GREY SHRIKE.

(PLATE 11.)

Lanius cinereus, *Briss. Orn.* ii. p. 141 (1760).
Lanius excubitor, *Linn. Syst. Nat.* i. p. 135 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Naumann, Temminck, Bonaparte, Degland, Gerbe, Newton, Dresser*, &c.
Collyrio excubitor (*Linn.*), *Gray, Hand-l. B.* i. p. 390 (1869).

The Great Grey Shrike is a regular though somewhat rare autumn and winter visitant to the British Islands. Although it has been observed during summer, there is no reliable evidence to prove that it has ever reared its young in this country; and it has also been repeatedly confused with Pallas's Grey Shrike, and even with the much commoner Red-backed Shrike. In Scotland it is of occasional occurrence, more frequent in the eastern and midland counties than in the western; but it has never been observed in the Hebrides. It is an occasional winter visitant to the Orkneys; and a "Grey Shrike" was once observed by Saxby at Balta Sound in the Shetlands. It has been obtained several times in Ireland; and Professor Newton states that a specimen was observed by Mr. J. Pell, the falconer, in Iceland.

The Great Grey Shrike breeds in the north of France, Belgium, Holland, Switzerland, Germany, Denmark, Scandinavia (up to about lat. 70°), and North Russia. In all these countries south of the Baltic it is found throughout the year; but the birds breeding north of the Baltic migrate southwards in winter, at which season they are found in every part of South Europe. On the Ural Mountains its range joins that of Pallas's Grey Shrike (*L. major*); and in South Russia, in the valley of the Volga, its range coalesces with that of another Siberian species, *L. leucopterus,* with both of which the present species interbreeds. It is, however, a very interesting fact that in Siberia, where these two latter species occur, they seem to have become so widely differentiated as to have ceased to interbreed, although both of them do so with the intermediate form *L. excubitor*.

The evidence that the birds of Central Europe are resident, and that they do not migrate southwards in winter, leaving their places to be taken by birds from North Europe, is to be found in the fact that the examples which cross the Bosphorus on migration consist of *L. excubitor* and *L. major,* and of intermediate forms between them, whereas *L. leucopterus* and the intermediate forms between it and *L. excubitor,* which are so common in the valley of the Volga, do not appear to wander into Asia Minor. Besides the two Siberian species already alluded to, the Great Grey Shrike has several near allies. In China a Shrike is found (*L. sphenocercus*) which is a highly developed form of *L. leucopterus*, but has a longer tail and grey, instead of white, upper tail-coverts. In Turkestan *L. mollis* occurs, which is apparently the least changed descendant of the common ancestor of all these Shrikes. Throughout the American continent north of the United States *L. borealis* is found, immature examples of which are very difficult to distinguish from adult *L. mollis* from Turkestan. The only other two species belonging to the slender-footed broad-tailed group of Grey Shrikes are *L. robustus* from California and *L. seebohmi* from the Amoor, each of which is only known from a single example. In Spain, North Africa, and Southern Asia the stout-footed narrow-tailed Grey Shrikes occur, and are capable of being subdivided into many species and subspecies, many of which have been most unaccountably confused together by Sharpe and Dresser in the 'Birds of Europe.'

If the Great Grey Shrike ever was a resident in the British Islands, it must have been many years ago. A bird which is by no means uncommon across the Channel might naturally be expected to reside also with us. It does not object to cross the sea, as its regular appearance on Heligoland proves; and a bird which is found in Norway and Sweden ought, one would think, to find a congenial climate in England. A tradition of its former residence in our island may perhaps be found in the 'Ornithology' of Willughby, published in 1678, wherein he records of the Greater Butcher-bird:—"Moreover we are told that it is found in the mountainous parts of the north of England, as for instance in the Peak of Derbyshire, where it is called *Wierangel*." A bird so conspicuous may possibly have been exterminated at an early date; but it could scarcely have had any formidable enemies except man. On the continent it holds its own against most birds of prey. Naumann writes:—"This Shrike is an extremely courageous and bold bird, and seldom allows any great bird, even an Eagle or a Buzzard, to fly past his domains with impunity, persecuting them incessantly. His warning cry announces to the rest of the birds the approach of a bird of prey, whence is derived his name of sentinel (Wächter). In the breeding-season he is especially watchful, and no Crow or Raven dare approach his perch."

In many of its habits this Shrike resembles a bird of prey. He is described as sometimes hovering over a mouse like a Kestrel, and at others pursuing a small bird like a Merlin, and fairly flying it down.

The Great Grey Shrike merits the name of Butcher Bird more than his smaller allies. He uses his hooked and notched beak, not only to tear up mice and little birds like a Raptorial bird, but also, because his feet and claws are comparatively weak, to assist in catching them. Even when he has caught his prey, unraptorlike, he seems to think his claws are not strong enough to hold it, and he sticks it on a thorn to devour it at his leisure, a proceeding which one would think would require great strength. It is evident that the strength of the Great Grey Shrike lies in his neck, and not in his legs. Like many birds of prey, he has his favourite feeding-place, some convenient spot in a hedgerow, probably chosen because the footing was good and the thorns sharp; and to this place he brings his prey during the day; and there an accumulation of the remains of his meals are discovered. Probably he has a dozen such places in various parts of the district in which he hunts. I remember finding one of these so-called larders in a hedge on a road-side a few miles from Valconswaard, close to a gate. The thorns were very long and sharp; and there were the dried-up remains of half-a-dozen mice, which had evidently been eaten except the feet, tail, and part of the skin. The discovery of these feeding-places has given rise to the myth that the Shrikes catch more than they can eat, and hang up the surplus in a larder for future use. In addition to mice it also eats small birds and insects. Naumann says that it will even attack birds almost as large as itself, and has been known to take Redwings. He writes:—"In summer it contents itself principally with insects (especially beetles and grasshoppers), small frogs, lizards, and blindworms. This is proved by an examination of the pellets which they cast up. In winter, on the contrary, these consist chiefly of the hair and bones of mice and the feathers of birds. He is very fond of newly fledged birds, and will plunder nests of their young; but in the breeding-season he seldom attacks adult birds."

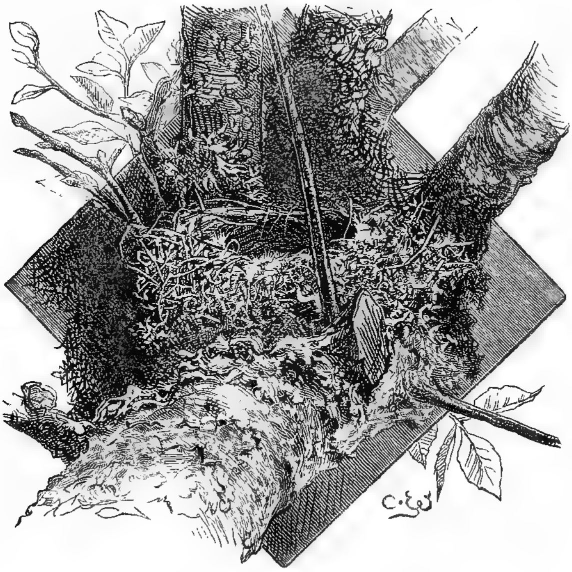
Although the Great Grey Shrike retires into the outskirts of the woods to breed, or selects some plantation where he is concealed from observation, he is a bird of the open country, and is very fond of a conspicuous perch—a post, or the top of a small tree, wherever he can command a good view and descry not only the approach of danger but also the chance of a meal. In these positions he seems to balance himself, like the Magpie, with his tail, which is never still. He is not a very noisy bird; but now and then his alarm-note may be heard, a sharp *shake, shake*. The song is something like that of a Starling. Naumann gives the call-note as *trüi*.

At Valconswaard this Shrike is in great request by the falconer. As the Hawks are passing over on migration the Shrike, pinioned near the falconer's net, attracts the attention of the birds of prey by its cries, which are the signal for the falconer to display a decoy-pigeon and thus lure the falcon into his net.

When I was in Heligoland I was fortunate enough to see the Great Grey Shrike in the act of migration. We were breakfasting on the 2nd of October in a room looking out over the cliff towards the sea, and watched one of these birds arrive. On the wing its black and white plumage made it look like a small Magpie; but its flight was more like that of a Woodpecker, very undulating. It was probably very tired; for an hour or two afterwards a boy brought it up to our room, and was delighted to receive fourpence for it. Several more arrived later.

In ornithology there seem to be very few rules without exceptions. Almost all resident birds are early breeders. Many of them pair for life; and it is only natural to suppose that birds which are hardy enough to brave a Dutch winter will begin to breed as soon as the April sunshine and the April flowers announce the return of spring. The Great Grey Shrike appears to be an exception to this rule. When I went to Valconswaard to study the habits of some of the rare or accidental visitors to our islands at their breeding-grounds, the eggs of the Great Grey Shrike were one of the objects of my special care; but though there were three of us (I was accompanied by my friends Mr. C. Bygrave Wharton and Mr. H. M. Labouchere), and though we had every boy in the village engaged in our service, it was not until the 19th of May that we took a nest containing four eggs. We had taken eggs of nearly all the common birds, even of such migrants as the Sedge-Warbler, Cuckoo, Nightingale, and Bluethroat, before the Great Grey Shrike's nest was discovered, within a couple of feet of the top of a slender Scotch-fir, about eighteen feet from the ground, in the middle of a pine-wood. On the 21st another nest was brought to us, containing five eggs. On the 27th one of our best pioneers, a Dutch lad of perhaps fourteen, came in to announce to us that he had found the nest of a *klapekster*, the local name of the Great Grey Shrike. It was a dismal, rainy day; but we soon put on our waterproofs, and a long walk brought us to an open space in a small wood. The nest was in the fork of an oak-tree about thirty feet from the ground. The bird was on, but flew off as the boy was ascending the tree, and began to fly anxiously about. Sometimes it settled in a tree, often on the topmost branch; and once it hovered in the air, with its body almost perpendicular, opposite the nest, which contained only two fresh eggs. The nest of the Great Grey Shrike is a somewhat bulky structure, as large as that of a Blackbird. Outside it is composed of slender twigs, dry grass, a few leaves, and a little moss, and is lined with roots, wool, hair, and feathers. The number of eggs varies from five to seven. They are buffish or greenish white in ground-colour, blotched and spotted with olive-brown of different shades, and with underlying markings of violet-grey. Usually most of the spots are on the large end of the egg, where many of them are confluent. Sometimes they form an irregular zone, and are generally somewhat ill-defined. The eggs of this Shrike do not differ very much; and the red type of egg, found in those of *L. collurio* and *L. rufus*, appears never to occur. They vary in length from 1·1 to 1·0 inch, and in breadth from ·8 to ·75 inch.

The Great Grey Shrike has the general colour of the upper parts clear slate-grey, shading into greyish white on the scapulars, the rump, and upper tail-coverts; the lores, cheeks, and ear-coverts are black; the wings are black, with white bases to both the primaries and secondaries, forming a double bar, and with white tips, broadest on the secondaries; the wing-coverts are black, those on the shoulder broadly margined with slate-grey; the two centre tail-feathers are black with white bases; the next pair are black, narrowly tipped with white; on the succeeding pairs the white increases in extent until the outermost feathers are almost uniform white. The underparts are white. Bill black, paler at the base of the lower mandible; legs, feet, and claws brownish black; irides dark brown. The female is similar to the male in colour; but the underparts are not so pure and are barred with faint greyish brown. Young birds are much duller than their parents, and the bars on the underparts are more conspicuous.



SPOTTED FLYCATCHER'S NEST.

LANIUS MINOR.

LESSER GREY SHRIKE.

(Plate 11.)

Lanius auriculatus, *Müll. Syst. Nat. Suppl.* p. 71 (1766).
Lanius cinereus medius, *Gerin. Orn. Meth. Dig.* i. p. 73, pl. liv. (1767).
Lanius minor, *Gmel. Syst. Nat.* i. p. 308 (1788); **et auctorum plurimorum**—*Naumann, Temminck, Bonaparte, Degland, Gerbe, Newton, Dresser, Bogdanow,* &c.
Lanius italicus, *Lath. Ind. Orn.* i. p. 71 (1790).
Lanius vigil, *Pall. Zoogr. Rosso-Asiat.* i. p. 403 (1826).
Lanius longipennis, *Blyth, Journ. As. Soc. Beng.* xv. 1846, p. 300.
Enneoctonus italicus (*Lath.*), *Bonap. Rev. et Mag. de Zool.* 1853, p. 438.
Lanius roseus, *Bailly, Orn. de la Sav.* ii. p. 26 (1853).
Enneoctonus minor (*Gmel.*), *Gray, Hand-l. B.* i. p. 393 (1869).

The Lesser Grey Shrike can only be considered a very accidental straggler to the British Islands, only four examples of this bird having been recorded. The first specimen, a female, was killed during the first week in November 1851, at St. Mary's, on the Scilly Islands. It was recorded in the 'Zoologist' for that year (p. 3300) as an example of the Great Grey Shrike by Mr. E. H. Rodd, who afterwards sent it to Mr. Gould, who corrected the error in its identification. The second specimen was forwarded to Mr. Murray A. Mathew from the immediate neighbourhood of Great Yarmouth. It was obtained early in the spring of 1869, and recorded by that gentleman in the 'Zoologist' for the year 1870 (p. 2060). The third example, a male, is recorded by Mr. Stevenson in the 'Zoologist' for 1875 (p. 4633). It was caught alive in a greenhouse near Great Yarmouth, in the same locality as the last-named specimen, during the last week of May 1875. On the 2nd of June it was brought to Mr. Stevenson in the flesh, having died in the cage in which its captors had placed it. It is now in the collection of Mr. J. H. Gurney, jun. Lastly, Mr. J. Gatcombe recorded in the 'Zoologist' for 1876 (p. 5178) a fourth specimen, caught alive in the neighbourhood of Plymouth. It was obtained by a birdcatcher, and was brought to a Mr. Peacock, a local bird-preserver, who was under the impression that it was an example of the Great Grey Shrike.

The Lesser Grey Shrike breeds in Eastern France, Germany, Switzerland, Italy, South Russia (up to lat. 57°), Austria, Turkey, Asia Minor, Palestine, Turkestan, Persia, and South-western Siberia (as far north as Omsk, in lat. 57°, and as far east as Lake Zaisan, in long. 84°). On migration it has occasionally occurred in South Sweden, Holland, Denmark, the British Islands, and Spain. So far as is known, its only winter quarters are in Africa, where it has been found in the valley of the Nile and southwards as far as Damara Land. It has been suspected that a few remain to breed in all parts of its winter range, even in Damara Land; but such an exceptional circumstance requires absolute confirmation. Unlike the Great Grey Shrike, the Lesser Grey Shrike has no very near ally, nor does it seem subject to any great variation of plumage.

The Lesser Grey Shrike is strictly a migratory bird, and is never seen in Europe in winter. It arrives in Greece, according to Krüper, about the middle of April, and in Germany, according to Naumann, early in May. It is consequently one of the latest summer visitors to Europe, and also one of the earliest to depart in autumn, disappearing towards the end of August. In both Greece and Asia Minor I occasionally met with this bird; but it was nowhere so common as either the Woodchat or the Red-backed Shrike, nor did it, like the latter bird, ascend into the pine-regions. It seemed also to be very rare in the forests of olives which fill many of the plains. The ground it preferred was the outskirts of cultivation, where trees and bushes of various kinds—small oaks, hollies, oleanders, pomegranates, white and pink roses, and abundance of clematis—struggle for existence amongst the broken rocks. Here and there a little patch is cultivated with wheat, tobacco, or Indian corn, with a tree or two in the middle (olive, almond, or walnut); and abundance of cleared places grown over with rank vegetation attest the former presence of a dying-out civilization. In these places the Lesser Grey Shrike was to be seen, occasionally perched conspicuously on the top of a bush. It also frequented the gardens near the villages, and is said to regale itself on the cherries, figs, and mulberries which grow in the hedges that divide them from each other. Its principal food is undoubtedly beetles (that swarm to an incredible extent in these climates), butterflies, grasshoppers, and other insects. The flight of this Shrike, like that of its congeners, is undulatory, but easy and comparatively noiseless; and it skims through the air like a Partridge for a moment or two before it alights on some perch, onto which it drops with a scuffle of the wings. The song of the Lesser Grey Shrike is a not unmusical chatter, something like the twitter of the Swallow or Starling, but louder and mixed with some harsher notes. It has a variety of notes, some very harsh, which are probably alarm-notes, and others somewhat plaintive, which may be call-notes.

This bird is said occasionally to impale insects on thorns, as most of his congeners are in the habit of doing.

The Lesser Grey Shrike breeds early in June. The nest is placed in the thick branches of poplars or fruit-trees, at least ten feet from the ground. One which I took in an olive-tree at Nymphion, east of Smyrna, on the 3rd of June, contained four fresh eggs. With the exception of a twig or two, a piece of flag-like rush, and a little wool at the foundation, the whole nest is composed of a downy-leaved cudweed (*Gnaphalium dioicum*), some in flower and some in seed, and most pulled up by the roots. Naumann describes the nest as usually built in Germany of dry roots, twigs, couch-grass, hay and straw, lined with wool, hair, and feathers.

The eggs vary in number from four to seven. Some are very round, measuring ·95 by ·8 inch. Others are much longer and more pointed, as, for example, 1·05 by ·7 inch. The average size and shape lies between these extremes. The ground-colour is a pale bluish green. Some eggs have a few small greenish-brown spots, chiefly towards the larger end. Typical eggs have also larger spots or blotches; whilst in examples which are exceptionally rich in their markings the spots round the egg towards the large end are confluent, but do not assume the form of a uniform band round the egg, because the underlying spots, which in all the varieties are paler and greener than the overlying spots, are distinctly visible amongst the others. The eggs of this bird may easily be distinguished from those of the Great Grey Shrike by their smaller size and much greener colour. From the largest and greenest varieties of the eggs of the Woodchat it is not quite so easy to separate them; but the latter are very seldom if ever quite so large or quite so green. It is not known that rufous varieties of the eggs of the Lesser Grey Shrike ever occur.

The Lesser Grey Shrike is a handsome bird, very similar in colour to the Great Grey Shrike, but with a black forehead, and with pale reddish-buff breast and flanks. Like Pallas's Grey Shrike, it has only one wing-bar. The female scarcely differs from the male. In the young the grey back is replaced by brown, and most of the feathers are transversely barred, and the reddish tinge on the underparts is nearly obsolete. Curiously enough, the moult of this bird appears to take place in winter; adult birds leave in their faded summer dress, and young birds in their barred plumage. Examples from South Africa in full moult are dated January and February.

LANIUS COLLURIO.

RED-BACKED SHRIKE.

(Plate 11.)

Lanius collurio, *Briss. Orn.* ii. p. 151 (1760); *Linn. Syst. Nat.* i. p. 136 (1766); **et auctorum plurimorum**—*Latham, Gmelin, Naumann, Temminck,* (*Gray*), (*Bonaparte*), *Degland, Gerbe, Newton, Dresser,* &c.
Lanius spinitorquus, *Bechst. Naturg. Deutschl.* ii. p. 392 (1791).
Lanius dumetorum, *Brehm, Vög. Deutschl.* p. 234 (1831).
Enneoctonus collurio (*Linn.*), *Boie, Isis,* 1826, p. 973.

The Red-backed Shrike is by far the commonest Shrike met with in the British Islands. It is a common and well-known, though local, summer visitor to most parts of England south of Yorkshire, being most numerous in the extreme southern counties. Curiously enough, it does not appear to have yet been noticed in Lincolnshire and is only occasionally seen in Cornwall. In the northern counties of England it becomes much rarer; whilst in Scotland it is of only accidental occurrence, usually on migration (although instances are on record of its having nested there), chiefly in the eastern counties. It has been met with in the Shetlands, where Dr. Saxby was inclined to believe that a pair reared their young during the summer of 1870. Its occurrence in Ireland has only once been recorded 'Zoologist,' 1878, p. 437). A male specimen was shot on the 10th of August in a glen near Castlereagh, county Down, about three miles from Belfast; and five or six other examples were said to have been in its company.

The Red-backed Shrike is a summer visitor to the whole of the continent of Europe up to lat. 64°, with the exception of the Spanish peninsula, where it is only an occasional straggler to the north-east. In Greece, Asia Minor, and Palestine it is only found in the pine-regions. Eastwards its breeding-range extends through Northern Persia and throughout Turkestan as far as the Altai Mountains. It passes through Asia Minor and North-east Africa on migration. A few winter in the valley of the Indus; but the great stream of migration appears to follow the valley of the Nile to South Africa, where it is abundant during our winter in Natal, Damara Land, the Transvaal, Angola, and the Cape colony. More than one South-African ornithologist states that it breeds during its visit to South Africa; but such a very anomalous circumstance requires the production of the nest and eggs before it can be accepted as a fact. Meyer's statement, quoted by Morris, that this bird is a native of North America, is quite erroneous.

Like the Lesser Grey Shrike, the Red-backed Shrike has no very near ally, nor does it appear to be subject to any local variation.

The Red-backed Shrike is one of the very latest summer migrants to arrive on our shores. It is rarely seen in its favourite haunts before the beginning of May; and as it seldom courts concealment, its arrival may be detected at once. Unlike many other of our summer birds of passage, both sexes appear to arrive together; and having once chosen a haunt, they seldom stray far away from it. The haunt of this interesting bird is in the open. Like the Flycatcher, it seems to prefer a locality which affords a good look-out, and at the same time a place of concealment to which it can retire if alarmed. You may often see the bird in localities abounding in tall hedgerows, or on the borders of woods, on heaths and commons, and more rarely near houses in large gardens. The habits of all the Shrikes are strikingly alike, and closely resemble those of the Flycatchers. Like that soberly dressed little bird the Spotted Flycatcher, the Red-backed Shrike will sit for hours on some bare perch, ever and anon sallying forth to capture a passing insect. Sometimes it will choose a bare bough on the side of a hedgerow, sometimes the topmost twig of a dense bush all overgrown with brambles, or sometimes a rail or stump—in fact any situation from which a good view may be obtained. Here the wary Shrike will sit, occasionally turning its head from side to side and jerking its tail, waiting patiently for prey. Although so small and insignificant, the little birds are in almost as much danger from him as they are from the bold relentless Sparrow-Hawk. When the occasion offers, he will pounce down upon some small bird sitting unsuspectingly near him, or he will chase the shrew-mice and deftly seize them as they wander through the grass. So bold is the Red-backed Shrike in search of food that it has been known to attack the call-birds, and is often taken in the birdcatcher's net—a victim to its own rapacity.

At times the bird will alight upon the ground and search for beetles; but the bulk of its food is either caught on the wing or dropped down upon unawares. In addition to small birds and mice, the Red-backed Shrike feeds upon lizards, many kinds of beetles, and also on bees, wasps, and grasshoppers. Like its congeners, it conveys many of its captures to some bush covered with sharp thorns, on which it impales its victims and devours them at leisure. This peculiar habit in the Shrikes of thus spitting their food is probably caused by the birds not having sufficiently powerful feet to grasp their prey until torn in pieces by the sharply toothed bill. They therefore secure their food on sharp thorns, and are able then, if it be a bird, to pluck it, or if an insect, a lizard, or a mouse, to tear it to pieces. In places frequented by this bold little bird, it is no uncommon thing to see in the bushes the remnants of its meal—of *many* meals; for the bird will regularly retire to one place for its purpose; and the bleached bones of a bird or mouse, the wing-cases of insects, portions of bees and wasps, will all tell their tale of this little plunderer's voracity. As an instance of this bird's rapacity, may be mentioned Mr. Clark-Kennedy's account in the 'Zoologist' (1875, p. 4722), where he describes the thorn-trees "decorated" with the bodies of the Great Tit, Blue Tit, Long-tailed Tit, Robin, and Hedge-Accentor, once with a young Thrush, twice with old Blackbirds, and once with young Partridges. It has also been known to feed on young Pheasants. Sometimes the bird will be seen to poise and hover above some bush or hedgerow, then pass onwards for a few yards, and again repeat the fluttering movements, like a miniature Kestrel. Its usual flight is a very drooping one, something like that of the Green Woodpecker. The Red-backed Shrike does not pursue small birds through the air; its powers of wing are not sufficient to allow it to engage in such chases with success; but it drops suddenly down upon them, either on the ground or when they are sitting on a twig, killing them with its powerful bill.

The call-note of the Red-backed Shrike is a harsh chirp; and its alarm-note, more rapidly and frequently repeated when its nest is approached, is a harsh *chack*. The song is very short and simple, merely a few notes quickly repeated; but in confinement it is said to imitate readily the songs of other birds.

Soon after its arrival, usually by the second week in May, the Red-backed Shrike searches out a nesting-site. The situation chosen is usually in the tall hedgerows (the bird's favourite retreat) or in the dense bushes overgrown with brambles. It appears to show very little care for the concealment of its nest, and will often build it in a bush or hedge by a much-frequented roadway. The nest is a bulky one, large for the size of the bird, and made of dry stems of plants, dead grass, rootlets, and moss, and lined with horsehair and sometimes a little wool. The eggs are from four to six in number, and are subject to such considerable variation that it would almost be impossible to describe each in turn. For the sake of convenience, they may be divided into four very distinct types. The first is pale green in ground-colour, spotted and speckled with olive-brown and with numerous underlying markings of violet-grey; the second is pale buff in ground-colour, spotted and blotched with pale olive-brown and with underlying spots of pale brown and violet-grey; the third is almost pure white or creamy white in ground-colour, finely speckled and spotted with rich reddish brown, and with larger underlying spots of violet-grey; the fourth has a salmon-coloured ground, spotted and blotched with brownish red of different shades, with violet-grey underlying spots and sometimes a few hair-like lines of deep brown. The character of the markings also varies considerably. Some eggs are uniformly spotted over the entire surface; most frequently the markings take the form of a zone, and sometimes are so thickly massed on the large end of the egg as to entirely conceal the ground-colour. In some eggs the markings are finely powdered on the shell; in others they take the form of bold spots and blotches; and in all eggs the underlying spots are both numerous and well defined. The eggs vary in length from ·95 to ·8 inch, and in breadth from ·7 to ·62 inch. It is very difficult to distinguish between the eggs of the present species and those of the Woodchat Shrike. The latter bird's are, however, on an average larger, not so bright, and usually more boldly marked.

When the young are being reared, the parent birds are even more daring and vigilant in search of food; and when the young birds quit the nest they are still accompanied by their parents—a noisy little band, exciting the attention of all observers by their harsh notes as they chase the insects and fly from bush to bush. It is very probable, as the Red-backed Shrike only rears one brood in the season, that these parties keep together and migrate in company. As is the case with most late immigrants, the birds quit our shores early in autumn, leaving for their winter quarters in September. Messrs. Sharpe and Dresser mention an instance, however, where a young bird of this species was seen by them as late as the 11th of November.

The male of this beautiful bird has the head, nape, upper back, rump, and upper tail-coverts clear slate-grey; the back and scapulars are rich chestnut-brown; the wing-coverts are black, broadly edged with rich chestnut; the wings are black, the primaries very narrowly and the secondaries broadly margined with chestnut. The two central tail-feathers are black; the rest have the basal half white, the terminal half black tipped and narrowly margined with white. A narrow frontal line, the lores, the feathers round the eye, and the ear-coverts are black; the underparts are rosy red, shading into white on the chin and under tail-coverts. Bill black; legs, toes, and claws black; irides dark brown. The female usually differs considerably from the male. She has no black about the head; and the whole of the upper parts are reddish brown; above the eye is a pale buff streak; the wings are similar in colour to those of the male, but the rufous margins are paler and not so broad; the tail is brownish red, tipped with buff and margined on the outer web of the outside feather with dull white. The general colour of the underparts is buffish white, transversely barred on the sides of the neck, the breast, and the flanks with brown. Young birds resemble the female above described, but have the upper parts also barred and the eye-stripe very indistinct.

LANIUS RUFUS*.

WOODCHAT SHRIKE.

(PLATE 11.)

Lanius senator, *Linn. Syst. Nat.* i. p. 94 (1758); *Gray, Hand-l. B.* i. p. 393 (1869).
Lanius rufus, *Briss. Orn.* ii. p. 147 (1760); *Lath. Gen. Syn. Suppl.* i. p. 283 (1787); **et auctorum plurimorum**—*Naumann, Temminck, (Bonaparte), Degland, Gerbe, (Kaup), Filippi, Heuglin, Brehm, Tristram, Krüper, Salvadori, Salvin, Hartlaub, C. A. Wright, Lilford, Hemprich, Ehrenberg, Blanford, Blasius,* &c., *nec Linn.*
Lanius minor primus, *Tunst. Orn. Brit.* p. 2 (1771).
Lanius pomeranus, *Sparrm. Mus. Carls.* t. i. (1786).
Lanius collurio, γ. rufus, *Gmel. Syst. Nat.* i. p. 301 (1788).
Lanius rutilus, *Lath. Ind. Orn.* i. p. 70 (1790).
Lanius ruficeps, *Bechst. Naturg. Deutschl.* ii. p. 1327 (1805).
Lanius ruficollis, *Shaw, Gen. Zool.* vii. pt. 2, p. 316 (1809).
Phoneus rufus (*Briss.*), *Kaup, Natürl. Syst.* p. 33 (1829).
Lanius melanotos, *Brehm, Vög. Deutschl.* p. 238 (1831).
Enneoctonus rufus (*Briss.*), *Bonap. Comp. List B. Eur. and N. Amer.* p. 26 (1838).
Lanius rutilans, *Temm. Man. d'Orn.* iv. p. 601 (1840).
Enneoctonus pomeranus (*Sparrm.*), *Cab. Mus. Hein.* i. p. 73 (1851).
Enneoctonus rutilans (*Temm.*), *Cab. Mus. Hein.* i. p. 73 (1851).
Lanius badius, *Hartl. Journ. Orn.* 1854, p. 100.
Lanius auriculatus (*Müll.*), *apud Cassin, Proc. Phil. Acad.* 1864, p. 238.
Enneoctonus auriculatus (*Müll.*), *apud Gurney, Ibis,* 1868, p. 159.

The Woodchat Shrike is an accidental visitor to England, chiefly during the seasons of migration. At least a score of examples have been obtained since the specimen which was sent to Gilbert White, and mentioned in a letter sent by that naturalist to Pennant in 1769. It has even been stated that this bird has once or twice nested at Freshwater in the Isle of Wight (see 'Ibis,' 1865, p. 17). Most of the specimens obtained in England have occurred in the southern and eastern counties. Although Don included it in his list of the birds of Forfarshire, the bird appears never to have been seen or obtained in Scotland by subsequent observers.

Upon the continent the Woodchat Shrike breeds in the basin of the Mediterranean, its northern range extending into South France, Holland, Germany (as far north and east as Pomerania), and Austria. Eastwards it is found as far as Western Persia, its range extending northwards into the Caucasus. It winters in Africa south of the Sahara and north of the equator. The Woodchat Shrike has no very near ally; nor does it appear to be subject to any local variations in the colour of its plumage.

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* This is a melancholy instance of the mischief produced by the "Stricklandian Code," the votaries of which appear to be pretty evenly divided on the subject, half of them voting for *L. auriculatus* and half for *L. pomeranus*. It is a pity that these ornithological socialists cannot let existing institutions alone, and allow us to retain the time-honoured name of *L. rufus* without dispute.

The habits of the Woodchat Shrike do not differ from those of its congener the Red-backed Shrike. Its haunts are in comparatively open places—districts sparsely studded with bushes and a few trees. Here it takes up its perch on some topmost spray or on the outside limb of a tree, where its bright plumage is most conspicuous, and where it sits for a lengthened period on the look-out for food. Ever and anon it will be seen to open and jerk its tail; and it is incessantly turning its head from side to side in close search for prey. It is not a wary bird, and, with due precaution, may be quite closely approached. Usually it is seen in pairs; and when disturbed, both birds will fly off in company.

In Greece and Asia Minor I found the Woodchat very common. With the exception of the Black-headed Bunting, I found more of its nests than those of any other bird. It is only a summer visitor to both these countries, belonging neither to the earliest nor to the latest birds of passage. It arrives about the first of April, at least three weeks after the Swallows, whose range extends into the Arctic regions, but three weeks before the Tree-Warblers (*Hypolais elæica* and *H. olivetorum*), whose range does not extend north of the basin of the Mediterranean. It is a very conspicuous bird, and cannot easily be overlooked, and is very common in the olive-forests. As you descend the mountains the olives in the valley look like a dense forest, often extending twenty miles or more; but when you descend into them you find that the trees are planted at some distance from each other, and that a considerable cultivation of vines, mulberries, and sometimes Indian corn, is carried on between them. But it is perhaps on the lower slopes of the hills, where the trees are more stunted and the ground is less cultivated, that the Woodchat is oftenest to be seen. Perched conspicuously upon the top of a bush, or even a lofty tree, it appears ever to be on the watch for the chance of pouncing down upon some unwary insect that may come within its range. Its song is by no means unmusical, and very gentle to proceed from such raptorial jaws. It reminded me very much of the twittering of a Swallow or the warble of a Starling. Some of its call-notes, however, are loud and harsh enough; and I at first thought it was imitating the notes of other birds in order to attract them within reach; but inasmuch as the greater number of notes it apparently imitated were of birds far too powerful for it to grapple with, such cannot be the case. The first nest I found in Greece was at Delphi, not very far from the ruins of the Temple of Apollo. The nest contained six eggs on the 5th of May. Higher than 2000 feet above the level of the sea the bird became much rarer; and in the pine-region, 4000 feet above the sea-level, its place seemed to be entirely taken by the Red-backed Shrike;

but as soon as we descended below the pine-region it again became extremely common; and we found the greater number of full clutches during the last fortnight of May. The nest was almost always placed in the fork of an olive-tree, and composed principally of cudweed (*Gnaphalium*)—a little hairy-stemmed hairy-leaved plant, with three or four little thistle-like flowers, growing from two to four inches high. These the Woodchats pulled up by the roots and wove together into a compact warm nest, which did not differ very much in colour from the bark of the olive-trees. Occasionally a twig or two was introduced; but for the most part the cudweed, with its flowers and its root, was foundation, wall, and lining to the nest.

Dixon, when in Algeria, made the following notes on this bird:—"The Woodchat Shrike is one of the commonest birds in Algeria. It arrives from its winter haunts, far beyond the desert, at the end of March, and speedily spreads itself over the entire country. In such a wide area as Algeria its haunts are very varied—from amidst the waving palms of the oases to the juniper-clothed sides of the Aurès in a district of almost perpetual snow. We saw it chasing the grasshoppers amidst the wild luxuriant scenery round Philippeville, its showy dress making it a conspicuous object a quarter of a mile away as it sat quietly on the bush-tops. I repeatedly watched the cock bird perched on the bare branches of a fig-tree, and listened to his low warbling song—notes that at once put me in mind of those of the Starling. On the wayside, even in most barren districts, provided a few shrubs occurred, we noticed this bold little bird perched upon them. In the oases it flitted from stump to stump, and sometimes perched on the dead leaf-stems of the palms. But it was perhaps the commonest in the evergreen-oak forests—not in the shady depths of the forests, but in the open places where a good look-out could be kept. It is not a shy bird, and is almost invariably accompanied by its mate. When seriously alarmed, it would often seek seclusion in the dense thorn-bush upon which it had previously been sitting. Its favourite food appears to be grasshoppers; but it will also attack small birds and mammals."

The food of the Woodchat Shrike is composed of beetles, grasshoppers, and many other insects, which, like the other Shrikes, it will spit on thorns for the purpose of securing them until they are eaten. As already remarked, it will also feed on small birds and mammals. It is often seen on the wing, like a Flycatcher; and when the capture of an insect is made it returns to its old perching place, ever watchful for an object for a fresh sally into the air. Its song is a pleasing one, uttered in a low strain, and sometimes varied by the introduction of a few carefully imitated notes of its neighbours. Its call-note is a harsh *kra-kra*; and when alarmed it will utter a loud scream.

The nest of the Woodchat Shrike is a very handsome structure, loosely put together, it is true, but with a rustic beauty about it almost peculiar to the nests of this group of birds. It is usually placed in the fork of a small tree—sometimes in the branches of an olive-tree, sometimes in an evergreen oak, a cork-tree, or a tamarisk; and Dixon has found it, twenty feet from the ground, close to the stem of a tall poplar growing in the bed of the river Roumnel at Constantine. The bird appears to take as little precaution for the concealment of its nest as our well-known Missel-Thrush; and it is often very conspicuous. It is made chiefly of the stems and flowers of the cudweed (much of it torn up by the roots), intermingled with a little grass, coarse herbage, and sometimes masses of wool. The lining is composed of the flowers of the plant, a few small dead leaves, and a little vegetable down. The eggs of this bird are from four to six in number. They are exceedingly variable in size and colour. They may be separated into three very distinct types, connected with each other by innumerable intermediate varieties. In the first the ground-colour is pale green, spotted and dashed, chiefly at the larger end, with olive-brown, and thickly marked with obscure underlying spots of pale violet-grey and ashy brown. In the second type the ground-colour is very pale buffish white, sparingly spotted with dark greenish brown, and thickly marked with underlying spots of grey. In the third type the ground-colour is reddish buff, the surface spots are dark reddish brown, and the underlying ones are pale lilac. In the greater number of the eggs of this bird the markings are most numerous on the large end, and very often form a zone. The spots, too, differ considerably in size; and, as a rule, the underlying ones are the largest. In some few instances the zone is round the small end of the egg. They vary in length from 1·05 to ·86 inch, and in breadth from ·72 to ·65 inch.

Mr. C. A. Wright states ('Ibis,' 1864, p. 59) that in Malta this bird may be seen during a great part of the year. "Perched on the uppermost twig of some tree, its shining white breast forms one of the most conspicuous objects in the ornithological landscape in April. On the first appearance of danger it flies off to another and more distant tree, and, taking up a similarly elevated position, scans the country round till the danger which had excited its alarm has passed away. It builds here in May and June, constructing a compact and well-formed nest in the fork of a carob or almond tree. Its affection for, and the courage it displays in the protection of, its young are remarkable. Wary as it is at other times, on these occasions it seems to lose all fear; uttering piercing cries, it will fly close round the head of the intruder, and actually make a feint of dashing in his face." Canon Tristram states that this Shrike breeds as plentifully in the seething glens of the Dead Sea as on the bleak hills of Samaria, and that he once found a nest of this bird near a village lined entirely with cotton threads of a piece of stocking, evidently torn to pieces by the bird. He also states that in Palestine the bird never appears to use wool or hair in the construction of its nest.

The Woodchat Shrike is a very handsome bird. The male has the crown of the head and the nape, extending onto the upper back, rich chestnut; lores white; the forehead, the space round the eye, the ear-coverts, the sides of the neck, and the upper part of the back are black; the rump is white, shading into grey on the lower back and longest upper tail-coverts; the wings are black, the basal part of the primaries white, forming a conspicuous spot, and the secondaries tipped with white; the tail is black, all the feathers, except the two central ones, white at the base and tipped with white, the two outermost feathers being almost uniform white on the outer web. The general colour of the underparts is pure white. Bill black; legs, toes, and claws dark brown; irides hazel. The female resembles the male, but has the red parts duller, and the parts which are black in the male are brown suffused with red; the underparts are buffish white, shading into pale buff on the flanks. The young in first plumage are reddish brown above, mottled and barred with dark brown and rufous; the wings are brown, broadly margined and tipped with rufous-brown; the tail is brown tipped with rufous, the outermost feathers much paler; the underparts are pale buff, thickly barred with brown; the bill is pale brown; and the legs and claws are also much paler than in the adult.